GOULD
Electronics

GOULD

An Electrical/Electronics Company

MANUAL PART NO.
11-802271-2X

Z-FOLD KIT
ALL
MODELS

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SECTION I

GENERAL INFORMATION

1.1 SCOPE

This manual describes all models of Gould Z-Fold Kits and includes specifications, installation instructions, operation, theory of operation, and maintenance. In addition, an illustrated parts breakdown is provided in the back of the manual.

1.2 DESCRIPTION

Gould chart paper Z-Folders provide for fast review, convenience of data retrieval and ease of storage. There are six models available for use with various Gould Recorders. The list that follows matches Z-Fold models to Gould recorders.

Z-Fold Model	Recorder
11-2271-20	Gould 200, 1707 Series
11-2271-21	480 &481 Recorders
11-2271-22	2600 & 2800 Series (60Hz)
11-2271-23	2600 & 2800 Series (50Hz)
11-2271-24	Gould 200, 1704 Series (60Hz)
11-2271-25	Gould 200, 1704 Series (50Hz)

The Z-Folder is designed for use only with Gould Semi-Perforated Z-Fold chart paper. The chart paper, packaged in rolls, is perforated on the back surface only, with no penetration to the writing surface. Blotting and possible tearing as pens cross the perforations are eliminated. Identifying numbers are prominently printed in succession on each double-leaf fold, an aid in indexing on the chart. Operation is synchronized with any chart speed selected.

The Z-Folder consists of two units (Figure 1-1) which are rack-mounted beneath the oscillograph: a Z-Folder module and a catch-drawer capable of handling a full record in Z-folded form. Both units operate in extended position and together occupy a total of 11inches of vertical space, including a minimum of 3½ inches between folder and drawer. For most efficient rack space utilization on Gould 200 Systems, it is recommended that the recorder drive amplifiers be mounted between folder and drawer when possible. The folded paper is easily removed from the drawer and can be read as one would read a book.

1.3 SPECIFICATIONS

Physical
- Weight
  - Folder Unit ..... 19 lbs. (8.6 Kg.)
  - Catch Drawer ..... 10 lbs. (4.54 Kg.)
- Principle Dimensions ..... See drawing 269023 (pg. 1.3)

Electrical
- Power Requirements ..... 115 vac, 60Hz; 170 watts-nominal

Environment
- Temperature
  - Storage ..... -40°F to +185° F (-40° C to +85° C)
  - Operating ..... +32° F to +131° F (0° C to +55° C)
- Humidity ..... 95% @ 32° C (90° F)
- Vibration & Shock ..... Best Commercial Practice

1.4 SUPPLIES

Wrench, Multi-Spline ..... 1-120922-3: Used for setting distance folder unit is to be extended from cabinet. Refer to Installation Instructions.

Chart Paper ..... Semi-Perforated chart paper required. Refer to appropriate recorder manual for chart paper model no.

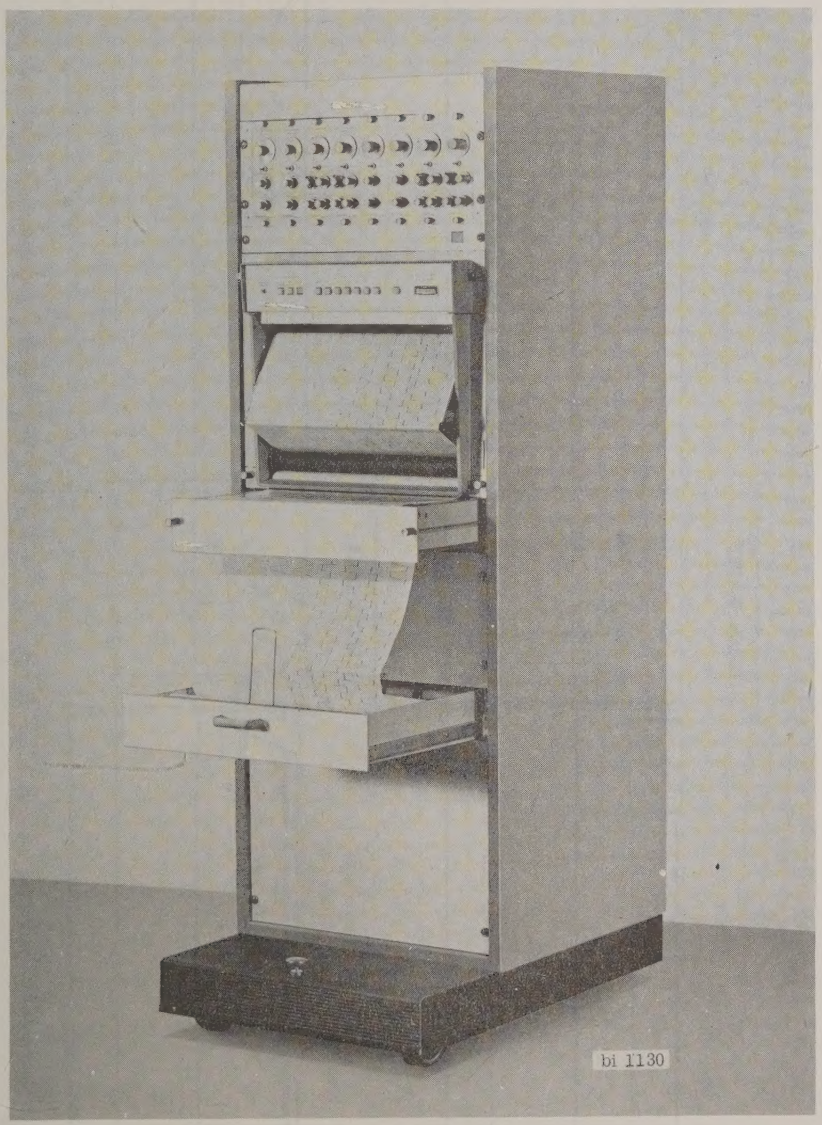
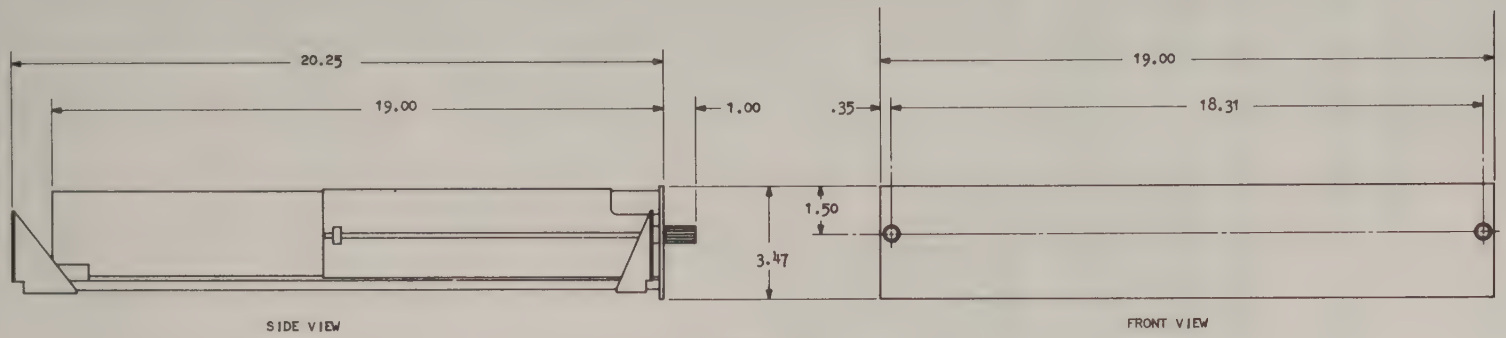
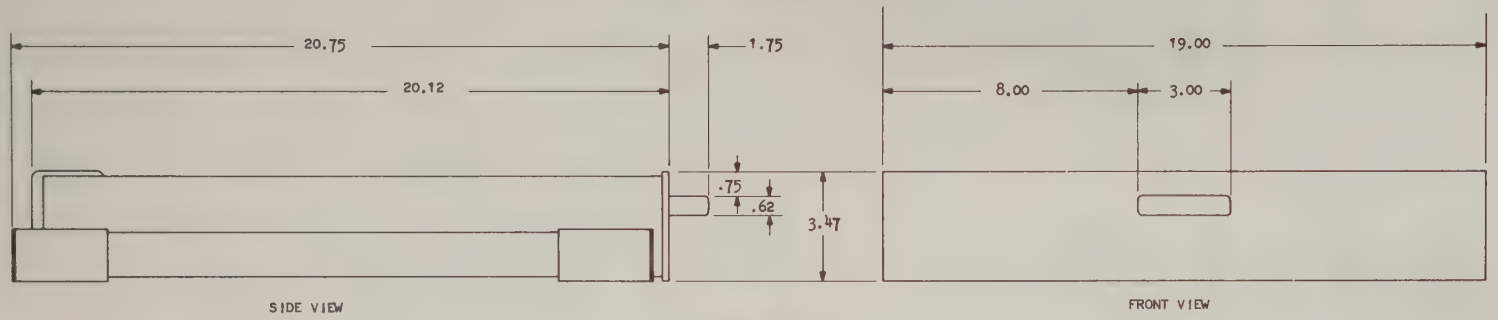


FIGURE 1-1 Z-FOLD KIT, MODEL 11-2271-20 INSTALLED IN TYPICAL GOULD 200 SYSTEM

REV. 00-2



FOLDER UNIT



CATCH DRAWER

1.3

Gould Inc.
Instrument Systems Division
Cleveland, Ohio 44114 U.S.A.

BY	DATE	NAME
DR R. GARMO	F.H.	OUTLINE, DIMENSIONAL
CK		
APP'D	11/4/69	CODE IDENT. 96795 ISSUE CODE G

SPEC. NO. 269023

SECTION II

INSTALLATION

2.1 GENERAL

This section describes and illustrates initial checks and inspections to be performed upon receipt of unit and unstallation of the Z -Fold Kit into a Gould Recording System.

2.2 INCOMING INSPECTION

Perform the following procedures before installing or operating the unit.

a. Remove packing material and tape from unit.

b. Visually inspect unit for damage that may have occurred during shipment.

c. Check that items listed on appropriate shipping list are supplied with unit.

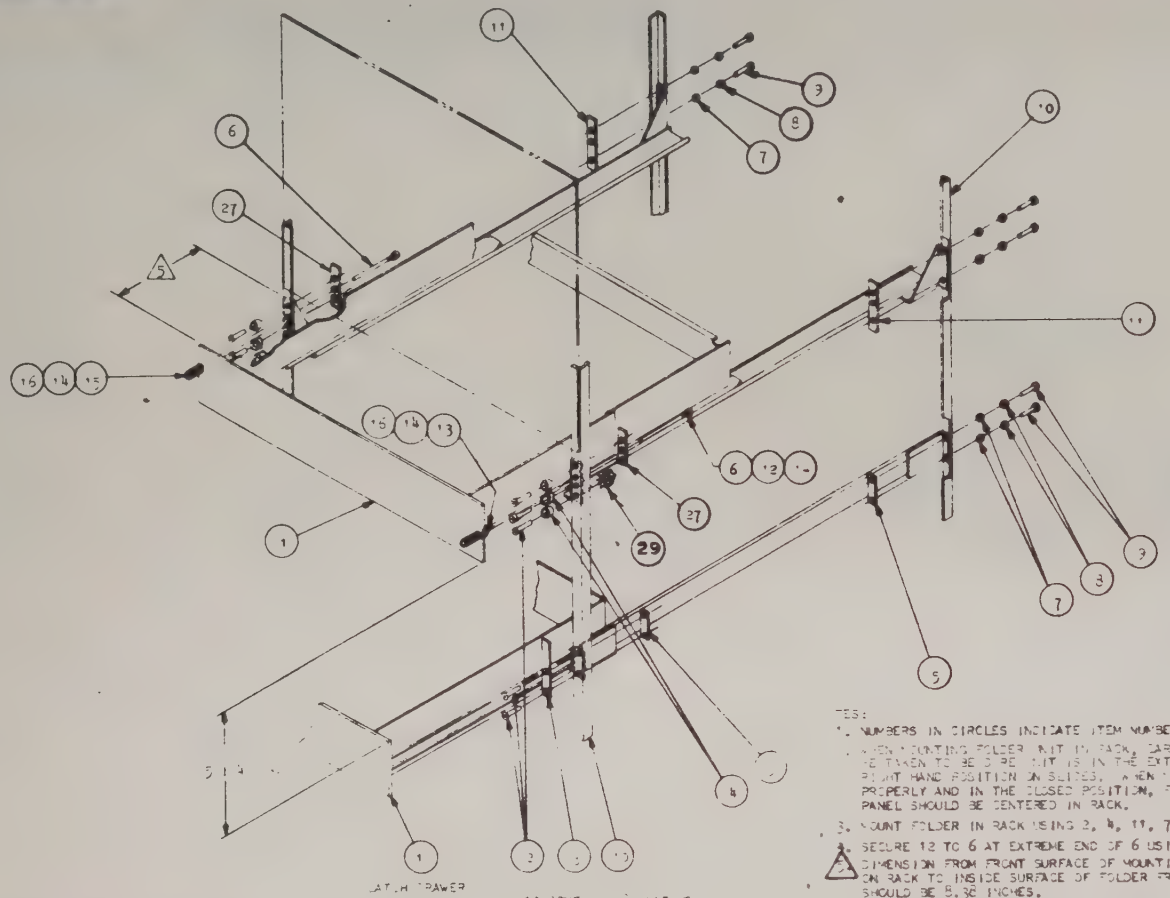
SHIPPING LIST	MODEL
692270	11-2271-24
692370	11-2271-25
688002	11-2271-22
688002	11-2271-23
669995	11-2271-21
669145	11-2271-20

2.3 INSTALLATION

Refer to appropriate installation drawing for correct installation procedure.

INSTALLATION DRAWING	USED ON
692270	Gould 200, 1704 Series
688002	Gould 2600 Series & 2800 Series Recorders
669995	Gould 480 & 481 Recorders
669145	Gould 200, 1707 Series

NOTE: Ref: 1st page of installation instructions. Item 25, wrench (P/N 1-120922-3) is tool required to satisfy note 5.



LTR	REVISIONS	DATE
A-1	ITEM-11 QUANTITY WAS: 4	6-25-80
A-2	ITEM-12 WAS:"12; 268765; SCREW, LOCKING; 2."	
A-3	ITEM-13 WAS:"13; 268763; SCREW, LOCKING; 2."	
A-4	ADDED ITEM-27 PER DCN 26675/A, SOTEROS	
B-1	QTY. OF ITEM-4 WAS:"4"	12-29-81
B-2	QTY. OF ITEM-2 WAS:"8"	
B-3	ADDED ITEM-29	
B-4	REV'D NOTE 3	
B-5	REV'D PICTORIALLY PER DCN 28968/S. JONES	

NO	BRUSH PART NO	DESCRIPTION	QUAN
		SHIPPING LIST	
30			
29	2-3898-02	NUT ASSEMBLED LOCKWASHER	2
28			
27	29-708	NUT PLATE, FRONT PANEL	2
26	11-2271-25	FOLDER ASSY	1
25	1-113983-3	WRENCH	1
24	662395	TUBE ASSY	1
23	10-735-7	TERMINAL, LUG	5
22	692270	SHIP. LIST & INSTALL INST.	1
21	223642	ENVELOPE, MANUAL	-
20	11-502271-3X	MANUAL, OPERATING	-
19	223640	CARD, CONCEALED DAMAGE	1
18	669009	HARNESS ASSY	1
17	669008	SCHEMATIC	1
16	2-3134-8	WASHER, NON-METAL	4
15	662795-1	ANGLE	2
14	31-131166-002	SCREW, SET	12
13	29-709	SCREW, LOCKING, FRONT	2
12	29-710	SCREW, LOCKING, BACK	2
11	662790	X PLATE	2
10	CABINET	NOT SHOWN	-
9	31-111918-008	SCREW, PAN HEAD	8
8	1-216741-403	LOCKWASHER	8
7	1-113105-309	WASHER, FLAIN	8
6	66772	SHAFT	2
5	68703	NUT PLATE	4
4	662761	SPACER	6
3	667738	SPACER, CENTER	2
2	31-111920-0013	SCREW, FLAT HEAD	10
1	11-2271-24	FOLDER ASSY	1

NOTES:
1. NUMBERS IN CIRCLES INDICATE ITEM NUMBERS.
2. WHEN MOUNTING FOLDER UNIT IN RACK, CARE MUST BE TAKEN TO BE SURE UNIT IS IN THE EXTREME RIGHT HAND POSITION IN SLIDES. WHEN MOUNTED PROPERLY AND IN THE CLOSED POSITION, FRONT PANEL SHOULD BE CENTERED IN RACK.
3. MOUNT FOLDER IN RACK USING 2, 4, 11, 7, 8, 9, 27, 29
4. SECURE 12 TO 6 AT EXTREME END OF 6 USING 14.
5. DIMENSION FROM FRONT SURFACE OF MOUNTING RAIL ON RACK TO INSIDE SURFACE OF FOLDER FRONT PANEL SHOULD BE 8.36 INCHES.
6. ASSEMBLE 13 TO 6 USING 14 (SEE NOTE 5). ASSEMBLE 16 BOTH SIDES OF FRONT PANEL. ASSEMBLE 15 USING 14.
7. MOUNT LATCH DRAWER BELOW FOLDER UNIT TO DIMENSION SHOWN USING 2, 3, 5, 7, 14 & 3.

2 ITEM - 1 USED FOR 115 V - 60 HZ UNITS
ITEM - 26 USED FOR 115 V - 50 HZ UNITS

3 DRAWING ONLY

LATCH DRAWER

DIMENSION FROM FRONT SURFACE OF MOUNTING RAIL.

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Instrument Systems Division
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SHIPPING LIST & INSTALLATION INSTRUCTIONS

96795 G

692270

2.2

M

ELECTRICAL CONNECTIONS

1. CONNECT THE FIVE WIRES ON CABLE 869009 FROM CHART PAPER FOLDER TO OSCILLOGRAPH MAIN CONNECTOR PANEL. THE CONNECTION POINTS DIFFER DEPENDING UPON OSCILLOGRAPH MODEL. SEE THE TABULATION BELOW FOR CONNECTIONS FOR EACH MODEL OSCILLOGRAPH.

THE CABLE IS SUPPLIED WITH QUICK DISCONNECT TERMINALS CRIMPED ON THE WIRES. ALSO SUPPLIED LOOSE WITH EACH CABLE ARE FIVE SOLDER TYPE SPADE LUGS. IF THE OSCILLOGRAPH INTO WHICH THE FOLDER IS TO BE INSTALLED WILL NOT ACCEPT QUICK DISCONNECT TERMINALS, REMOVE TERMINALS FROM WIRES AND SOLDER ON SPADE LUGS.

AFTER CONNECTING WIRES TO OSCILLOGRAPH, CHECK VOLTAGES AT CONNECTOR WHICH PLUGS INTO BACK OF FOLDER UNIT. SEE SKETCH FOR PROPER VOLTAGES.

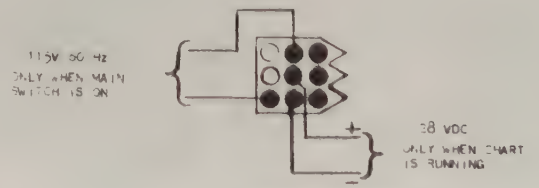
2. WIRE CONNECTIONS

A) VERTICAL MK 200

CONNECT WIRES FROM CABLE TO TERMINAL BLOCK TB-1 ON SYSTEM A/N CONNECTOR PANEL AS FOLLOWS:

WIRE COLOR	TERMINAL NO. ON TB-1	FUNCTION
GRN	GR 6	CHASSIS GROUND
WHITE	7	115V NEUTRAL
BLACK	8	115V HOT
BROWN	9	28 VDC NEUTRAL
WHT/BLK/GRN	10	+28 VDC

3. BEFORE INSERTING PLUG INTO REAR OF FOLDER, CHECK THE PLUG FOR THE FOLLOWING VOLTAGES:



OTHER MODIFICATIONS

4. THE RIGHT HAND OSCILLOGRAPH EVENT MARKER MUST BE MOVED TO SOME OTHER LOCATION ON THE CHART, PREFERABLY ONE CHANNEL TO THE LEFT. THIS IS TO PREVENT THE EVENT MARKER TRACE FROM FALSE TRIGGERING THE FOLDER. IT MAY BE NECESSARY TO USE T BE [illegible], TO DISCONNECT THE UNIT BE [illegible] THE MANIFOLD.

IF ALL EVENT CHANNELS ARE FILLED, TOTAL OF NINE EVENT MARKERS, THE RIGHT HAND ONE MUST BE MADE INOPERATIVE.

NO	BRUSH PART NO	DESCRIPTION	CLASS
		SHIPPING LIST	

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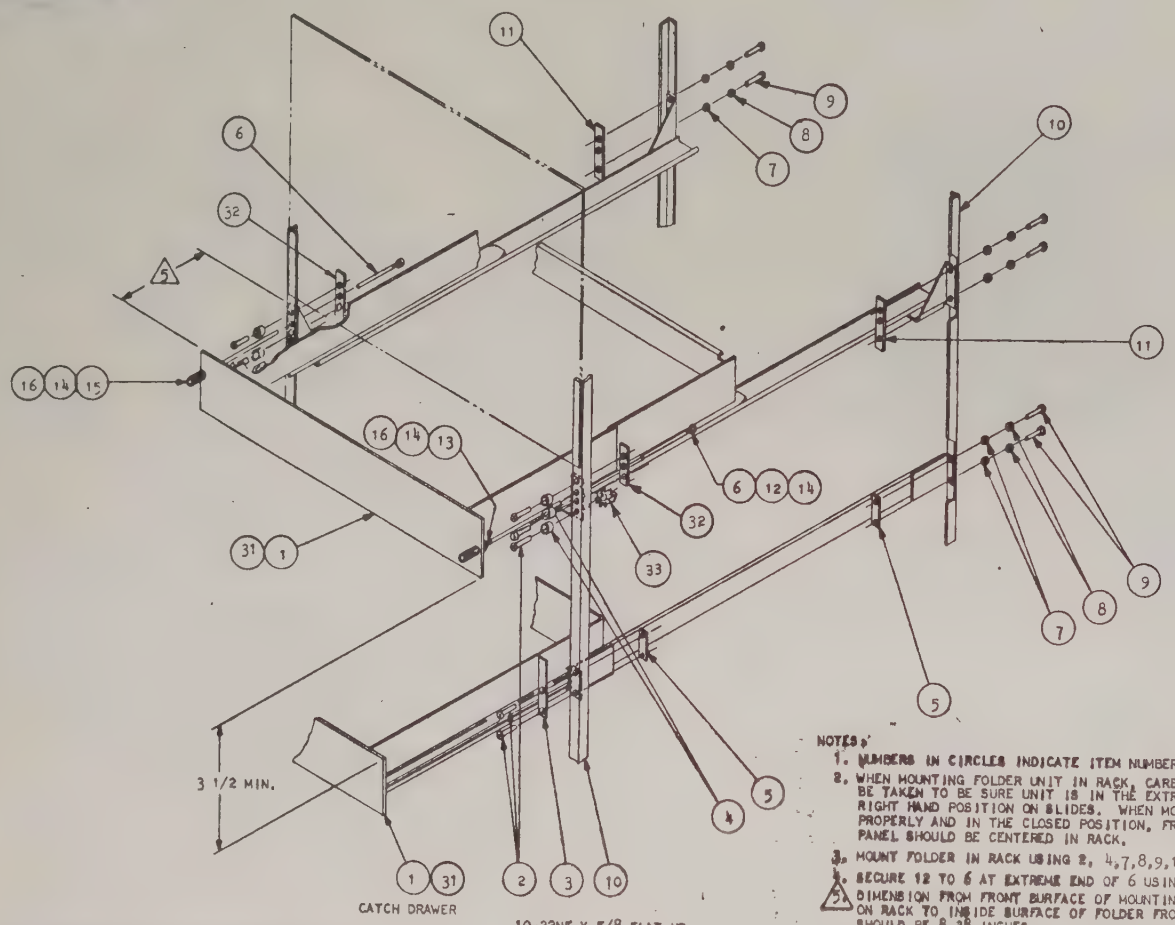
Instrument Systems Division
Cleveland, Ohio 44114 U.S.A.

SHIPPING LIST & INSTALLATION INSTRUCTIONS

96795 G 692270

692270

2.3



NOTES:

1. NUMBERS IN CIRCLES INDICATE ITEM NUMBERS.
2. WHEN MOUNTING FOLDER UNIT IN RACK, CARE MUST BE TAKEN TO BE SURE UNIT IS IN THE EXTREME RIGHT HAND POSITION ON SLIDES. WHEN MOUNTED PROPERLY AND IN THE CLOSED POSITION, FRONT PANEL SHOULD BE CENTERED IN RACK.
3. MOUNT FOLDER IN RACK USING 2, 4, 7, 8, 9, 11, 32 & 33.
4. SECURE 12 TO 6 AT EXTREME END OF 6 USING 14.
5. DIMENSION FROM FRONT SURFACE OF MOUNTING RAIL ON RACK TO INSIDE SURFACE OF FOLDER FRONT PANEL SHOULD BE 8.38 INCHES.
6. ASSEMBLE 13 TO 6 USING 14 (SEE NOTE 5). ASSEMBLE 16 BOTH SIDES OF FRONT PANEL. ASSEMBLE 15 USING 14.
7. MOUNT CATCH DRAWER BELOW FOLDER UNIT TO DIMENSION SHOWN USING 2, 3, 5, 7, 8 & 9.
8. ITEM 1 USED FOR 115V 60 Hz UNITS.
   ITEM 31 USED FOR 115V 50 Hz UNITS.

REV	ZONE	DESCRIPTION	DATE
		REVISIONS	
A-1		ITEM 15 WAS 261785	5-12-77
B-1		ITEM-11 QUANTITY WAS:4	6-29-
B-2		ITEM-12 WAS:"12; 268766; 85	
B-3		SCREW, [illegible]	
B-4		ITEM-13 WAS [illegible] 261763;	
--		SCREW, [illegible]	
--		ADDED [illegible]	
--		DCN 28736 /S. JONES	
C-1		ADDED DASH NO. FOR [illegible]	10-14 -81
C-2		ADDED NOTE 9. PER DCN 28736 /S. JONES	
D-1		QTY. OF ITEM-4 WAS:"4"	12-30 -81
D-2		QTY. OF ITEM-2 WAS:"8"	
D-3		ADDED ITEM-33	
D-4		REV'D NOTE 3	
D-5		REV'D PICTORIALLY PER DCN 28968/ S. JONES	

CON'T ON SHEET 2

NO	BRUSH PART NO	DESCRIPTION	QTY
35	265840-2	LUG	3
34	283210	CONN., PLUG AC-MALE	1
33	243898-02	NUT, ASSEMBLED LOCKWASHER	2
32	294708	NUT PLATE, FRONT PANEL	2
31	11-2271-23	FOLDER	-
30	2007-8XXX-XX	RECORDER 2800	-
29	2007-6XXX-XX	RECORDER 2600	-
28	15-C687-C0	RECORDER MARK 480	-
27	243225-4	CLAMP, LOOP	1
26	123108-54	GROMMET	1
25	1-120922-3	WRENCH	1
24	662095	TUBE ASSY	1
23	104795-7	TERMINAL, LUG	5
22	688002	SHIP. LIST & INSTALL INST.	1
21	[illegible]	ENVELOPE, MANUAL	1
20	11-602271-2X	MANUAL, OPERATING	1
19	222640	CARD, CONCEALED DAMAGE	1
18	887930	HARNESS ASSY	1
17	26[illegible]3	SCHEMATIC	1
16	243104-8	WASHER, NON-METAL	4
15	268795-1	KNOB	2
14	31-121166-4002	SCREW, SET	12
13	294709	SCREW, LOCKING, FRONT	2
12	294710	SCREW, LOCKING, BACK	2
11	268750	NUT PLATE	2
10	CABINET	19" RETMA	-
9	31-119918-0208	SCREW, PAN HEAD	8
8	1-216741-403	LOCKWASHER	8
7	1-118195-309	WASHER, PLAIN	8
6	268772	SHAFT	2
5	268793	NUT PLATE	4
4	268761	SPACER	6
3	268794	SPACER, CENTER	2
2	31-119920-0210	SCREW, FLAT HEAD	16
1	11-2271-22	FOLDER	-

SHIPPING LIST

DRAWN	9/24/76	SHIPPING LIST & INSTALLATION INSTRUCTIONS	
CHECKED	9/24/76		
APPROVED	10/1/76	SIZE G	DWG NO 688002

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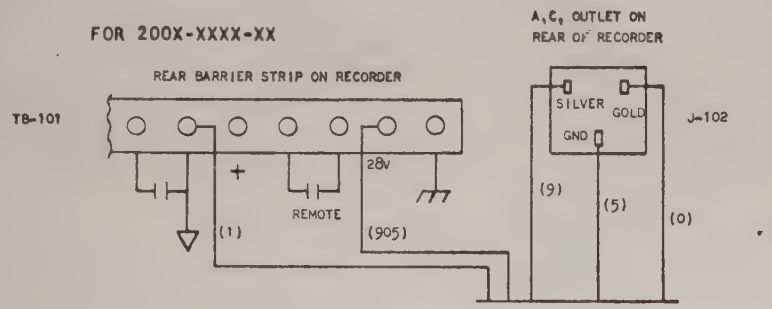
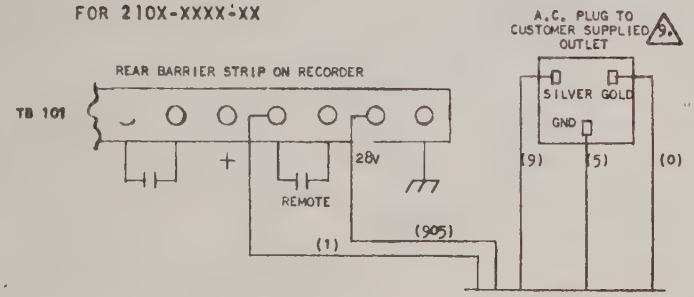
Instrument Systems Division
Cleveland, Ohio 44114 U.S.A.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
E1	ADDED ITEMS 34&35	JCO	
E2	REV'D NOTE 9/DCN29524	4-15-82	

FOR 200X-XXXX-XX



FOR 210X-XXXX-XX

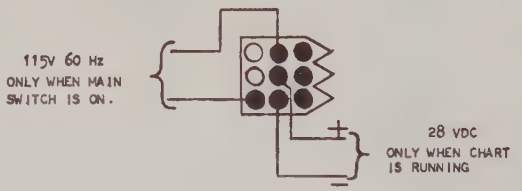


1. CONNECT THE FIVE WIRES ON CABLE FROM CHART PAPER FOLDER TO OSCILLOGRAPH TERMINAL BOARD TB-101 & A.C. OUTLET J-102. SEE VIEWS FOR CONNECTIONS.

   THE CABLE IS SUPPLIED WITH QUICK DISCONNECT TERMINALS CRIMPED ON THE WIRES AND AN A.C. PLUG.

   AFTER CONNECTING THE WIRES TO OSCILLOGRAPH, CHECK VOLTAGES AT CONNECTOR WHICH PLUGS INTO BACK OF FOLDER UNIT. SEE SKETCH FOR PROPER VOLTAGES.

2. BEFORE INSERTING PLUG INTO REAR OF FOLDER, CHECK THE PLUG FOR THE FOLLOWING VOLTAGES:



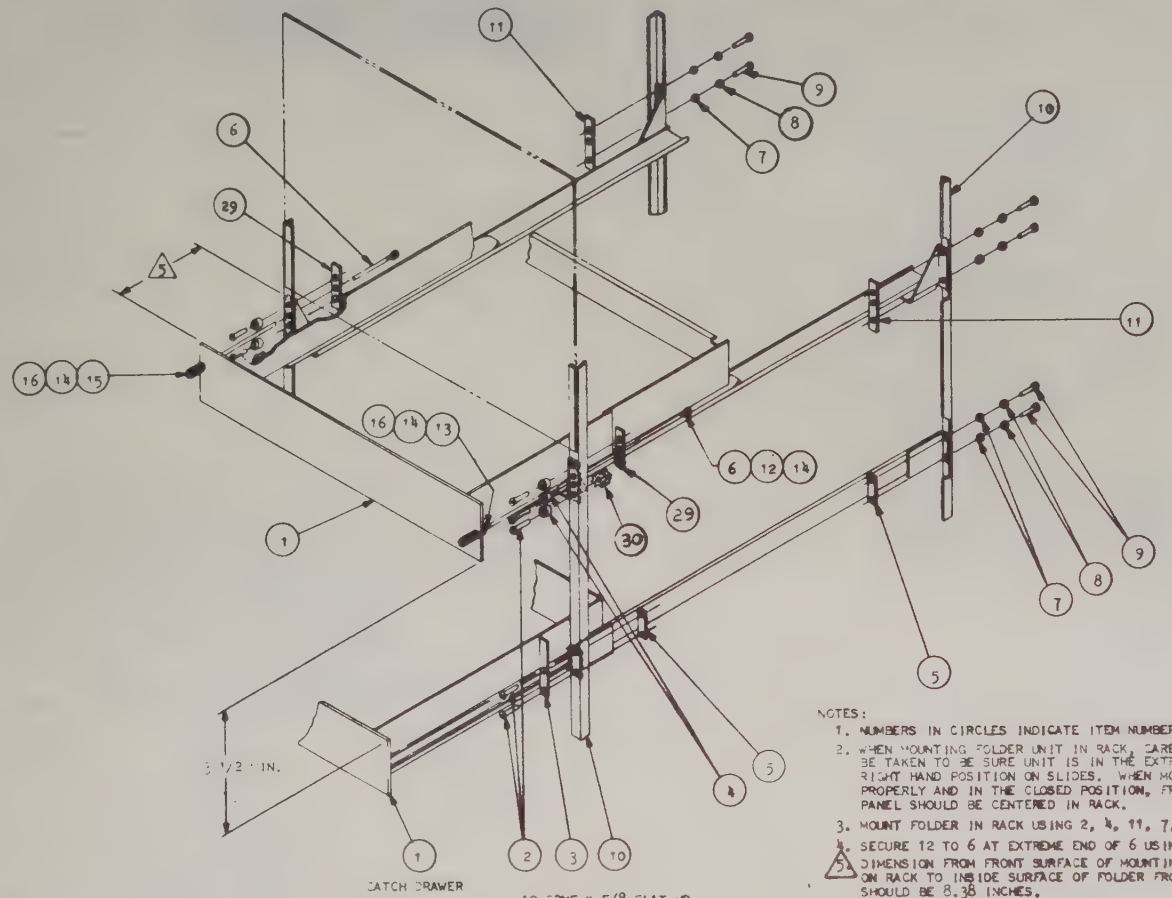
OTHER MODIFICATIONS

3. THE RIGHT HAND OSCILLOGRAPH EVENT MARKER MUST BE MOVED TO SOME OTHER LOCATION ON THE CHART, PREFERABLY ONE CHANNEL TO THE LEFT. THIS IS TO PREVENT THE EVENT MARKER TRACE FROM FALSE TRIGGERING THE FOLDER. IT MAY BE NECESSARY TO USE THE TUBE ASSY, ITEM 24, TO CONNECT THE INK TUBE TO THE MANIFOLD.

   IF ALL THE EVENT CHANNELS ARE FILLED, TOTAL OF SEVEN MARKERS, THE RIGHT HAND ONE MUST BE MADE INOPERATIVE.

9. TERMINATIONS ARE TO BE CONNECTED AS NECESSARY. WHEN POWER KIT IS NOT SUPPLIED, USE A.C. PLUG (ITEM-34). WHEN POWER KIT IS SUPPLIED, WIRE TO SWITCHED A.C. TERMINALS ON POWER INPUT PANEL USING QUICK-DISCONNECTS (ITEM 35) OR BARE WIRE AS NECESSARY.

BY	DATE	NAME	Gould Inc. Instrument Systems Division Cleveland, Ohio 44114 U.S.A.
DR CARMO	9/24/75	SHIPPING LIST & INSTALL. INSTRUCTIONS	
CH Lewis	10/7/75	CODE IDENT. 96795	DWG. NO. 688002
APP Gould	11/75	ISSUE CODE G	PAGE 2 OF 2



NOTES:

1. NUMBERS IN CIRCLES INDICATE ITEM NUMBERS.
2. WHEN MOUNTING FOLDER UNIT IN RACK, CARE MUST BE TAKEN TO BE SURE UNIT IS IN THE EXTREME RIGHT HAND POSITION ON SLIDES. WHEN MOUNTED PROPERLY AND IN THE CLOSED POSITION, FRONT PANEL SHOULD BE CENTERED IN RACK.
3. MOUNT FOLDER IN RACK USING 2, 4, 11, 7, 8, 9, 29/30.
4. SECURE 12 TO 6 AT EXTREME END OF 6 USING 14.
5. DIMENSION FROM FRONT SURFACE OF MOUNTING RAIL ON RACK TO INSIDE SURFACE OF FOLDER FRONT PANEL SHOULD BE 8.38 INCHES.
6. ASSEMBLE 13 TO 6 USING 14 (SEE NOTE 5). ASSEMBLE 16 BOTH SIDES OF FRONT PANEL. ASSEMBLE 15 USING 14.
7. MOUNT CATCH DRAWER BELOW FOLDER UNIT TO DIMENSION SHOWN USING 2, 3, 5, 7, 8 & 9.

REVISIONS			
SYM	DESCRIPTION		DATE
A1	Pg. 2 WIRE [5] WAS CONN. TO TB-303 TERM. 17 DCN 12680		1-23-78 MS
B-1	TB-301, TERM. 5 WAS COLOR (D) + TERM 7 WAS (B) DCN 13812		P. MILLER 1-16-78
B-2	REMOVE "CLEVITE BRUSH" FROM PANEL 6-4-78 LENARCK		MF
C-1	ITEM-11 QUANTITY WAS: 8		6-25-80
C-2	ITEM-12 WAS: "12; 268765; SCREW, LOCKING; 2"		
C-3	ITEM-13 WAS: "13; 268763; SCREW, LOCKING; 2".		
C-4	ADDED ITEM-29 PER DCN 26675/A, SOTEROS		
D-1	QTY. OF ITEM-4 WAS: "4"		12-29-81
D-2	QTY. OF ITEM-2 WAS: "8"		
D-3	ADDED ITEM-30		
D-4	REV'D NOTE-3		
D-5	REV'D PICTORIALLY PER DCN 28968/ S. JONES		

NO	BRUSH PART NO	DESCRIPTION	QUAN
30	343898-02	NUT, ASSEMBLED LOCKWASHER	2
29	294708	NUT PLATE, FRONT PANEL	2
28	15-6687-00	RECORDER MARK 480	-
27	243225-4	CLAMP, LOOP	1
26	123108-5A	GROMMET	1
25	1-120922-3	WRENCH	1
24	662095	TUBE ASSY	1
23	104795-7	TERMINAL, LUG	5
22	669995	SHIP. LIST & INSTALL INST.	1
21	422642	ENVELOPE, MANUAL	-
20	11-802271-20	MANUAL, OPERATING	-
19	222640	CARD, CONCEALED DAMAGE	1
18	869009	HARNESS ASSY	1
17	269008	SCHEMATIC	1
16	243104-8	WASHER, NON-METAL	4
15	268795	KNOB	2
14	31-121166-4002	SCREW, SET	12
13	294709	SCREW, LOCKING, FRONT	2
12	294710	SCREW, LOCKING, BACK	2
11	268590	NUT PLATE	2
10	CABINET	19" RETMA	-
9	31-119918-0208	SCREW, PAN HEAD	8
8	1-216741-403	LOCKWASHER	8
7	1-118195-309	WASHER, PLAIN	3
6	268772	SHAFT	2
5	268793	NUT PLATE	4
4	268761	SPACER	6
3	268794	SPACER, CENTER	2
2	31-119920-02T0	SCREW, FLAT HEAD	10
1	11-2271-21	FOLDER	1

SHIPPING LIST

DRAWN/ EP	SHIPPING LIST & INSTALLATION INSTRUCTIONS	669995
7.5.	CAGE NUMBER 96795	SIZE G
		SHEET NO. 1 OF 2

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2.6

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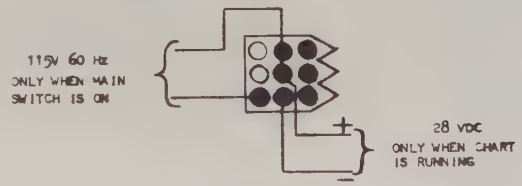
REVISIONS		
NO.	DESCRIPTION	DATE

1. CONNECT THE FIVE WIRES ON CABLE 869009 FROM CHART PAPER FOLDER TO OSCILLOGRAPH TERMINAL BOARDS TB-301 (INSIDE ELECTRICAL CHASSIS) AND TB-303 (OUTSIDE ELECTRICAL CHASSIS). SEE VIEWS FOR CONNECTORS.

   THE CABLE IS SUPPLIED WITH QUICK DISCONNECT TERMINALS CRIMPED ON THE WIRES.

   AFTER CONNECTING THE WIRES TO OSCILLOGRAPH, CHECK VOLTAGES AT CONNECTOR WHICH PLUGS INTO BACK OF FOLDER UNIT. SEE SKETCH FOR PROPER VOLTAGES.

2. BEFORE INSERTING PLUG INTO REAR OF FOLDER, CHECK THE PLUG FOR THE FOLLOWING VOLTAGES:

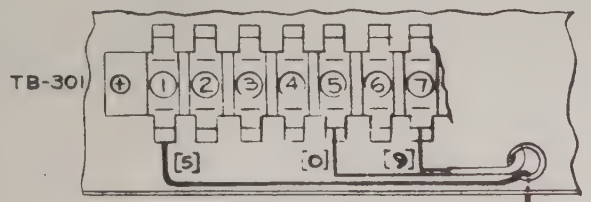


OTHER MODIFICATIONS

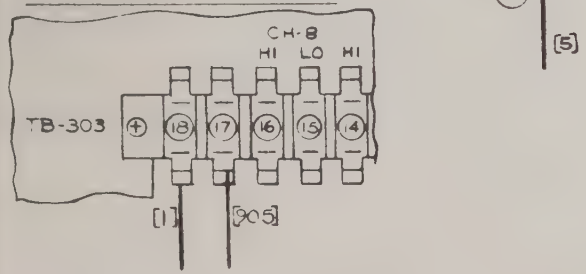
3. THE RIGHT HAND OSCILLOGRAPH EVENT MARKER MUST BE MOVED TO SOME OTHER LOCATION ON THE CHART, PREFERABLY ONE CHANNEL TO THE LEFT. THIS IS TO PREVENT THE EVENT MARKER TRACE FROM FALSE TRIGGERING THE FOLDER. IT MAY BE NECESSARY TO USE THE TUBE ASSY, ITEM 24, TO CONNECT THE INK TUBE TO THE MANIFOLD.

   IF ALL THE EVENT CHANNELS ARE FILLED, TOTAL OF SEVEN MARKERS, THE RIGHT HAND ONE MUST BE MADE INOPERATIVE.

MOUNTED INSIDE OF ELECTRICAL CHASSIS



MOUNTED OUTSIDE OF ELECTRICAL CHASSIS



NO.	BRUSH PART NO.	DESCRIPTION	QUAN.
		SHIPPING LIST	

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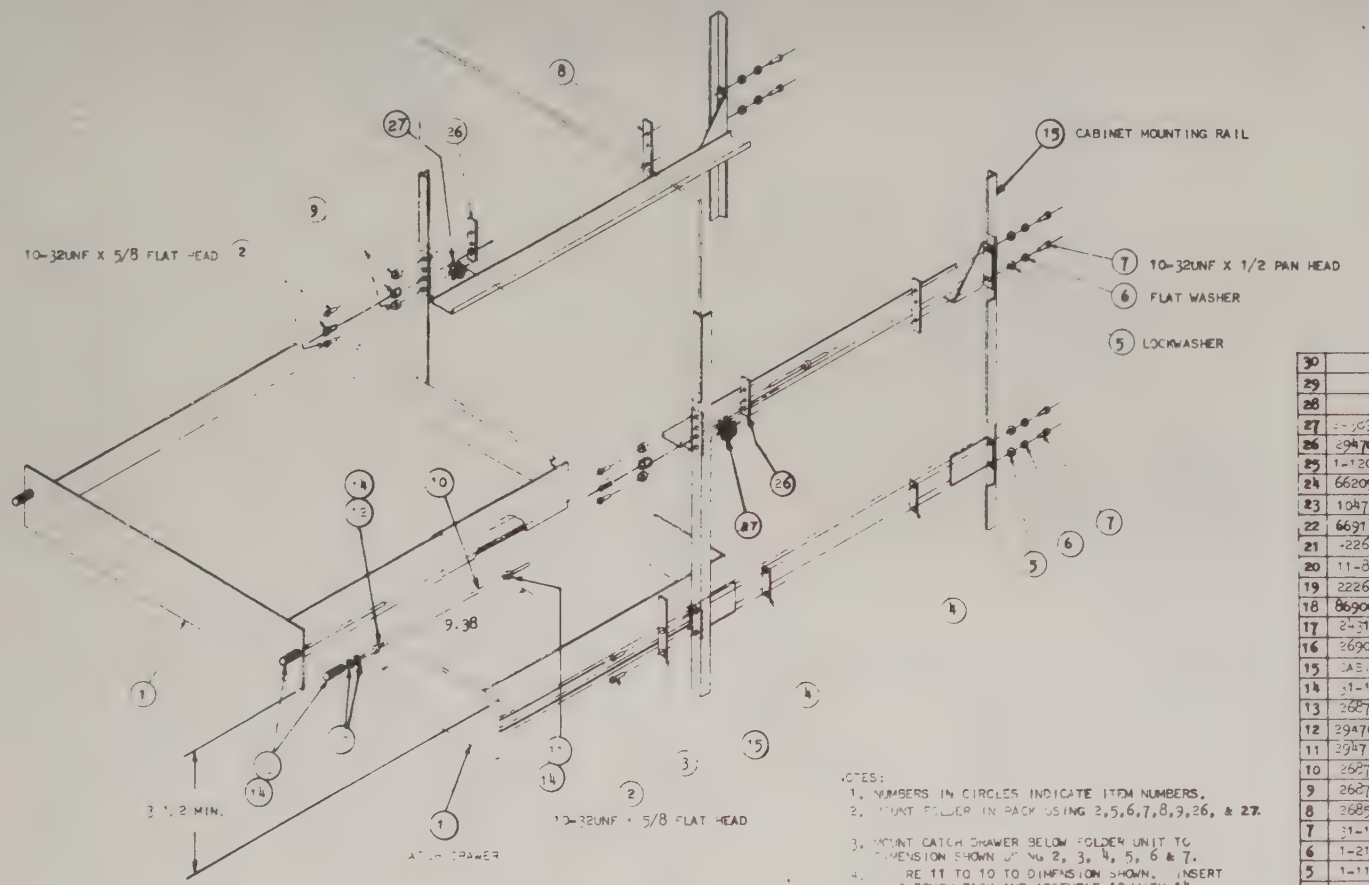
BY / DATE	NAME	SHIPPING LIST & INSTALLATION INSTRUCTIONS	
VAUGHN 5 EP			
CHK'D	APPD		
WEILAND 5/7	96795	G	669995
			SHT. 2 OF 3

669995

2.7



NOTES:
1. NUMBERS IN CIRCLES INDICATE ITEM NUMBERS.
2. MOUNT FOLDER IN RACK USING 2,5,6,7,8,9,26, & 27.
3. MOUNT CATCH DRAWER BELOW FOLDER UNIT TO DIMENSION SHOWN USING Nos 2, 3, 4, 5, 6 & 7.
4. ADJUSTABLE 11 TO 10 TO DIMENSION SHOWN. INSERT THROUGH RACK AND ASSEMBLE 12 WITH 14.
5. PLACE FOLDER UNIT BACK ON SLIDES.
6. ASSEMBLE 17 ONTO 10 (ONE ON EACH SIDE OF FRONT PANEL) AND SECURE 13 IN PLACE WITH 14.

REVISIONS		
A-1	ADDED ITEM 24.	
A-2	PG. 2, ADDED OTHER MODIFICATIONS NOTE. DCN 11889 HAUSER.	3/4/67
B-1	ADDED ITEM 25 DCN 12143 HAUSER	3-9-67
B-2	REMOVED CLEVITE BRUSH; FROM PANEL. LENARCIC	6/6/78
C-1	ITEM-8 QUANTITY WAS: 4	6-25-
C-2	ITEM-11 WAS:"11; 268765; SCREW, LOCKING; 2"	80
C-3	ITEM-12 WAS."12; 268763; SCREW, LOCKING; 2"	
C-4	ADDED ITEM-26 PER DCN 26675/A, SOTEROS	
D-1	ADDED ITEM-27	11-30
D-2	REVISED PICTORIALLY	-81
D-3	QTY. ITEM-9 WAS:"4"	
D-4	QTY. ITEM-2 WAS:"10" PER DCN 28968/S, JONES	

NO	BRUSH PART NO	DESCRIPTION	QUAN
30			
29			
28			
27	11-1038-002	NUT, ASSEMBLED LOCKWAS.	2
26	294708	NUT PLATE, FRONT PANEL	2
25	1-120922-3	WRENCH	1
24	662095	TUBE ASSY	1
23	104795-7	TERMINAL, LUG	5
22	669145	SHIP. LIST & INSTALL. INST	1
21	222642	ENVELOPE, MANUAL	1
20	11-802271-20	MANUAL, INSTRUCTION	1
19	222640	CARD, CONCEALED DAMAGE	1
18	869009	HARNESS ASSY	1
17	24-3104-8	WASHER, NON-METAL	4
16	869008	SCHEMATIC	1
15	CABINET	19" RETMA	-
14	31-121166-4002	SCREW, SET	12
13	268795	KNOB	2
12	294709	SCREW, LOCKING, FRONT	2
11	294710	SCREW, LOCKING, REAR	2
10	268772	SHAFT	2
9	268761	SPACER	6
8	268590	NUT PLATE	2
7	31-119918-0208	SCREW, PAN HEAD	8
6	1-216741-430	LOCKWASHER	8
5	1-118195-309	WASHER, PLAIN	8
4	268793	NUT PLATE	4
3	268794	SPACER, CENTER	2
2	31-119920-0210	SCREW, FLAT HEAD	10
1	11-2271-20	FOLDER	1

SHIPPING LIST

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SHIPPING LIST & INSTALLATION INSTRUCTIONS

96795 G 669145

669145

2.8

ELECTRICAL CONNECTIONS

1. CONNECT THE FIVE WIRES ON CABLE 869009 FROM CHART PAPER FOLDER TO OSCILLOGRAPH MAIN CONNECTOR PANEL. THE CONNECTION POINTS DIFFER DEPENDING UPON OSCILLOGRAPH MODEL. SEE THE TABULATION BELOW FOR CONNECTIONS FOR EACH MODEL OSCILLOGRAPH.

THE CABLE IS SUPPLIED WITH QUICK DISCONNECT TERMINALS CRIMPED ON THE WIRES. ALSO SUPPLIED LOOSE WITH EACH CABLE ARE FIVE SOLDER TYPE SPADE LUGS. IF THE OSCILLOGRAPH INTO WHICH THE FOLDER IS TO BE INSTALLED WILL NOT ACCEPT QUICK DISCONNECT TERMINALS, REMOVE TERMINALS FROM WIRES AND SOLDER ON SPADE LUGS.

AFTER CONNECTING WIRES TO OSCILLOGRAPH, CHECK VOLTAGES AT CONNECTOR WHICH PLUGS INTO BACK OF FOLDER UNIT. SEE SKETCH FOR PROPER VOLTAGES.

2. WIRE CONNECTIONS

A) 1707 SYSTEMS (SOLID STATE DRIVE AMPLIFIERS)

CONNECT WIRES FROM CABLE TO TERMINAL BLOCK TB-1 ON OSCILLOGRAPH MAIN CONNECTOR PANEL AS FOLLOWS:

WIRE COLOR	TERMINAL NO. ON TB-1	FUNCTION
GREEN	5 OR 6	CHASSIS GROUND
WHITE	7	115V NEUTRAL
BLACK	8	115V HOT
BROWN	9	28 VDC NEUTRAL
WHT/BLK/GRN	10	+28 VDC

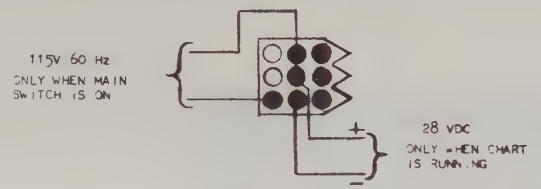
B) 1783 SYSTEMS (HYBRID DRIVE AMPLIFIERS)

REMOVE QUICK DISCONNECT TERMINALS FROM WIRES OF CABLE, SOLDER SPADE LUGS (FURNISHED) ON ALL WIRES EXCEPT BROWN WIRE. STRIP & TIN BROWN WIRE 1/4". CONNECT THE WIRES WITH THE SPADE LUGS TO THE TERMINAL BLOCK TB-1 ON MAIN CONNECTOR PANEL OF OSCILLOGRAPH AS FOLLOWS:

WIRE COLOR	TERMINAL NO. ON TB-1	FUNCTION
GREEN	5 OR 6	CHASSIS GROUND
WHITE	7	115V NEUTRAL
BLACK	8	115V HOT
WHT/BLK/GRN	9	+28 VDC

SOLDER REMAINING BROWN WIRE TO PIN E (28V NEUTRAL) OF 19 PIN FEMALE CONNECTOR -701A ON OSCILLOGRAPH.

3. BEFORE INSERTING PLUG INTO REAR OF FOLDER, CHECK THE PLUG FOR THE FOLLOWING VOLTAGES:



OTHER MODIFICATIONS

4. THE RIGHT HAND OSCILLOGRAPH EVENT MARKER MUST BE MOVED TO SOME OTHER LOCATION ON THE CHART, PREFERABLY ONE CHANNEL TO THE LEFT. THIS IS TO PREVENT THE EVENT MARKER TRACE FROM FALSE TRIGGERING THE FOLDER. IT MAY BE NECESSARY TO USE TUBE ASSY, ITEM 24, TO CONNECT THE INK TUBE TO THE MANIFOLD.

IF ALL EVENT CHANNELS ARE FILLED, TOTAL OF NINE EVENT MARKERS, THE RIGHT HAND ONE MUST BE MADE INOPERATIVE.

REVISIONS

NO	DESCRIPTION	DATE
D-4		

NO	BRUSH PART NO.	DESCRIPTION	QUAN
	SHIPPING LIST		

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Instrument Systems Division
Cleveland, Ohio 44114 U.S.A.

SHIPPING LIST & INSTALLATION INSTRUCTIONS

96795 G

669145

PAGE 2 OF

669145

2.9

SECTION III

OPERATION

3.1 GENERAL

Figures 3-1 and 3-2 describe and illustrate the procedures for loading chart paper and operating the recorder with the Z-Fold Adapter.

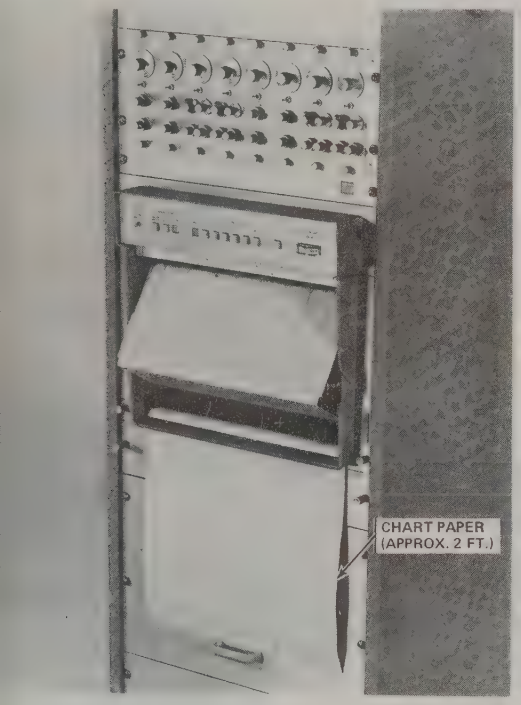


FIGURE 3-1

A Operate oscillograph to run out approximately two feet of chart paper.

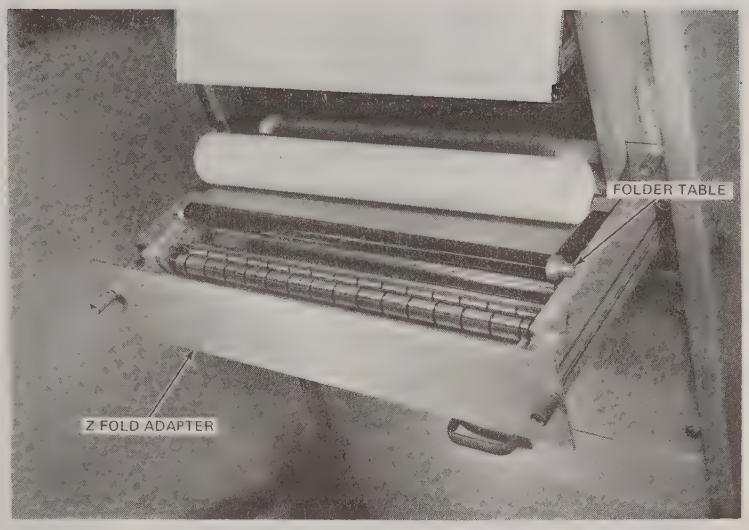


FIGURE 3-2

B Extend Z-fold adapter by simultaneously turning two thumb screws counterclockwise while pulling outward on Z-folder.

C With Z-fold adapter extended to full out position, continue to turn screws counterclockwise. This will lock folder in extended position. (Unit must be fully extended and locked in order to operate.)

D Release folder table by pulling front edge forward and up. Table is spring loaded and will slide back exposing folder mechanism.

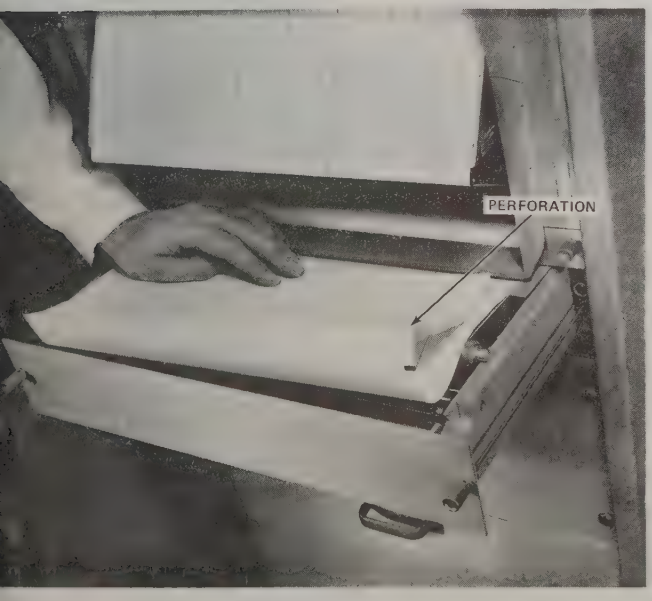


FIGURE 3-3

E Examine back side of chart paper to locate perforation mark closest to end of paper.

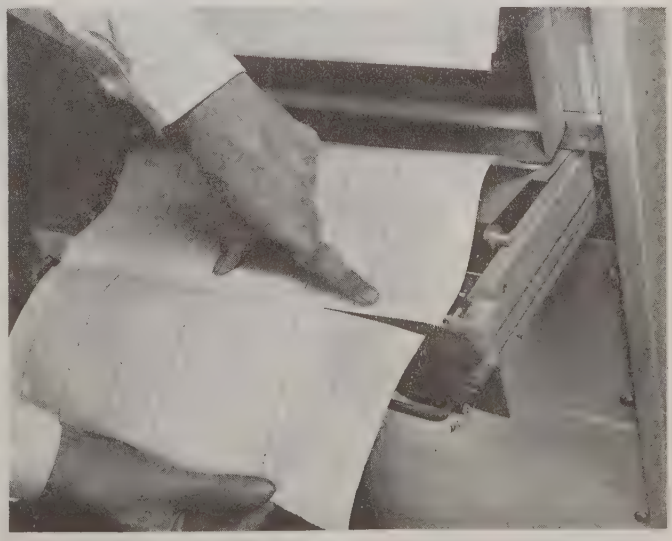


FIGURE 3-4

F Crease paper and tear evenly along this line.

Note: Make sure there is still 18 inches of chart paper run out; if not, operate oscillograph briefly to run out additional paper.

FIGURE 3-5

G Position square end of chart paper evenly between rollers. Paper must be behind alignment bar and positioned to extreme right of folder.

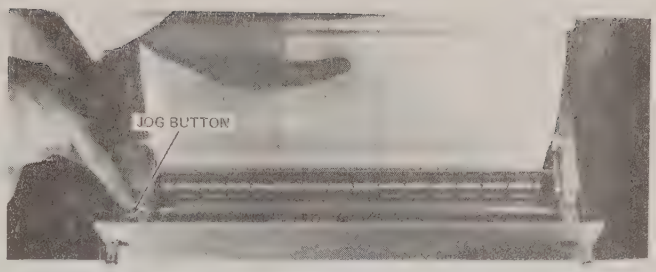


FIGURE 3-6

H Momentarily depress jog button (located in left-top corner of folder) until audible "click" is heard. (Because of speed of folder with jog button depressed, momentary action will take no more than 1 or 2 seconds.)

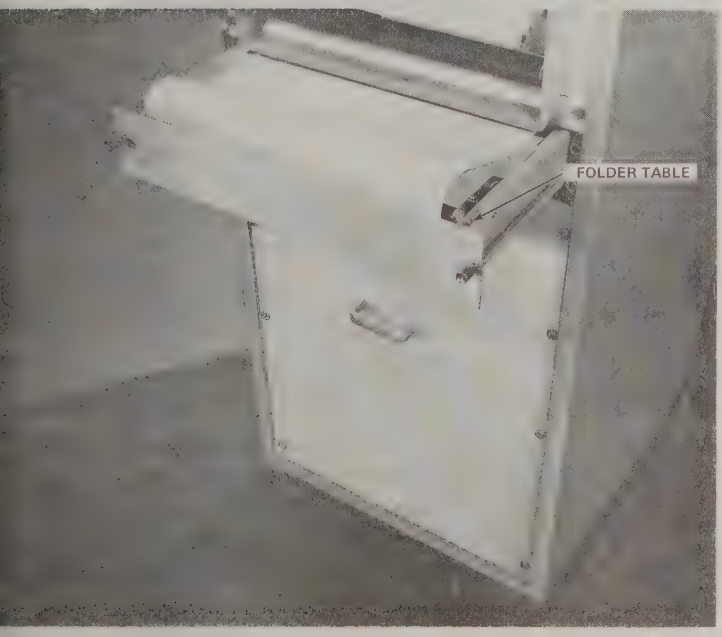


FIGURE 3-7

I Pull folder table forward so that paper must form around front edge of table. Pull down to lock in operating position.

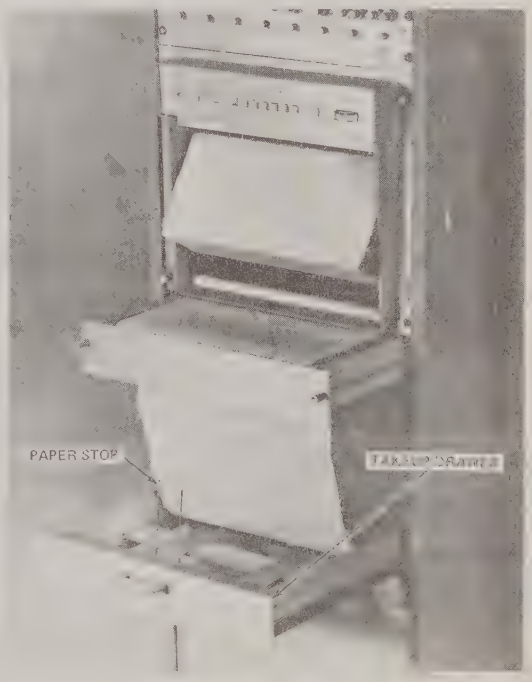


FIGURE 3-8

J Extend take-up drawer and raise paper stop.

K Operate oscillograph briefly to take up slack formed on folder table, and to provide sufficient paper for first fold to form in take-up drawer.

L Position this fold according to direction of fold. Remainder of paper will be folded properly if this first fold is positioned correctly.

M Unit is now ready for operation. Z-fold adapter will operate at any chart speed. (Paper take-up drawer is not to be used for paper storage. Folded paper must be removed before closing the paper take-up drawer.)

SECTION IV
THEORY OF OPERATION

4.1 GENERAL

This product enables the user of an oscillograph to have the advantage of fan-fold paper output along with the pressure ink writing, without degradation of oscillograph performance or writing quality. It requires the use of semi-perforated chart paper. The system (see Fig. 4-1) functions as follows:

a. When the chart paper is printed, it is also semi-perforated from the back side to a controlled depth, but not all the way thru. At the same time a black register mark for each perforation is printed on the reverse side of the paper. The paper is then re-spooled in the conventional manner. When it is passed thru the oscillograph, the pens write on an unbroken surface; hence, no leakage or damaged pens because of snagging on the perforations.

b. In the folder unit, which is mounted directly below the oscillograph, the black mark on the back of the paper passes over a photo cell which triggers the folding mechanism. The paper is stopped very quickly (within 2 milliseconds) so the paper perforation is in the correct position for folding. After the paper is stopped, it is carried between the front pull roller and clamp by the carriage bars. The carriage bar then moves back and allows the clamp to pinch the paper against the roller. The clamp then is moved away which allows the paper to drop out. The paper is then allowed to advance until the mark for the next fold passes over the photocell. The folding cycle is then repeated in the opposite direction for the rear fold.

c. After the paper is folded, it falls into a catch drawer. This drawer has four slowly revolving fiber brushes which pull the edges of the paper down into a compact pile. This is necessary because the paper hinge at the fold has a tendency to spring back open and cause the ends of the pile of paper to billow up.

4.2 MAIN CONTROL INTERLOCK

NOTE: Refer to schematic 269008.

The connector cable is wired to the recording system from which it receives power——115 vac switched with the main power switch and 28vdc which is on only when the chart drive motor is on. In series with the hot 115vac line is a 3-amp fuse F-201 and interlock switch S-204. The interlock switch allows operation only when unit is fully extended from oscillograph rack. The electronics is separately protected by a 1/4 amp fuse F-202. The electronics are on whenever interlock S-204 is closed. Relay K-101 is energized by the 28vdc which is present only when the oscillograph chart drive motor is running. This relay controls torque motor B-202, catch tray motor B-201, and control circuitry for folder motor B-203. The jog switch, S-201, bypasses the contacts on relay K-202 which controls torque motor B-202. This allows the torque motor to be jogged for paper threading without the oscillograph paper drive on.

For each fold cycle, the brake solenoid K-202 must be energized, the folding motor B-203 complete exactly 1/2 revolution, and then the brake solenoid released which will allow the chart paper to advance thru the unit.

4.3 MOTOR CONTROL CIRCUIT

NOTE: Refer to schematic 269008 and Figure 4-2.

The folding motor B-203 receives power from relay K-101. There is also a parallel path from the 115 vac always hot side thru switch S-202. In series with the motor B-203 is a full wave bridge consisting of diodes CR-113, CR-114, CR-115, CR-116. Across the d-c leg of the bridge are two capacitors, C-106 and C-107, and also relay K-202 which is in series with S.C.R. Q-102. Across Q-102 is switch S-203. Diodes CR-117 and CR-118 are for noise suppression only.

When S.C.R. Q-102 is not conducting and switch S-203 is open, capacitors C-106 and C-107 charge to the peak line voltage. When a pulse is received across the secondary of transformer T-102 to turn on S.C.R. Q-102, capacitors C-106 and C-107 are discharged into relay K-202. This causes the brake to be applied in less then 0.002 seconds. At the same time, because current is now flowing thru the bridge, motor B-203 starts. A cam on the motor shaft now closes switches S-203 and S-202. Switch S-203 shorts out the SCR and allows it to return the non-conducting state. When the motor has completed the 1/2 revolution switches S-202 and S-203 are opened which stops motor B-203 and releases brake relay K-202. Capacitors C-106

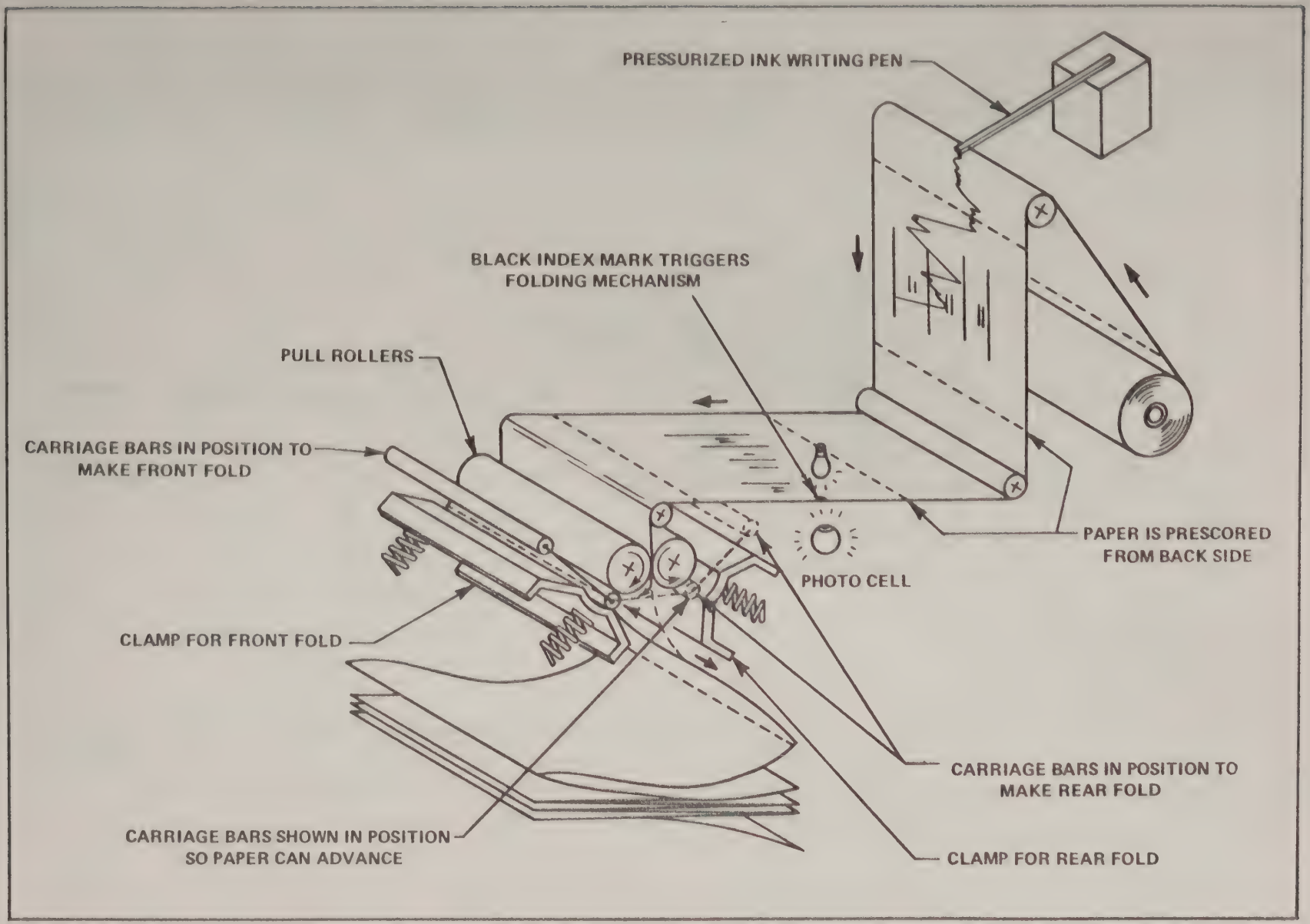

PRESSURIZED INK WRITING PEN
BLACK INDEX MARK TRIGGERS FOLDING MECHANISM
PULL ROLLERS
CARRIAGE BARS IN POSITION TO MAKE FRONT FOLD
PAPER IS PRESCORED FROM BACK SIDE
PHOTO CELL
CLAMP FOR FRONT FOLD
CARRIAGE BARS IN POSITION TO MAKE REAR FOLD
CARRIAGE BARS SHOWN IN POSITION SO PAPER CAN ADVANCE
CLAMP FOR REAR FOLD

FIGURE 4-1 SIMPLIFIED PAPER FOLDER DIAGRAM

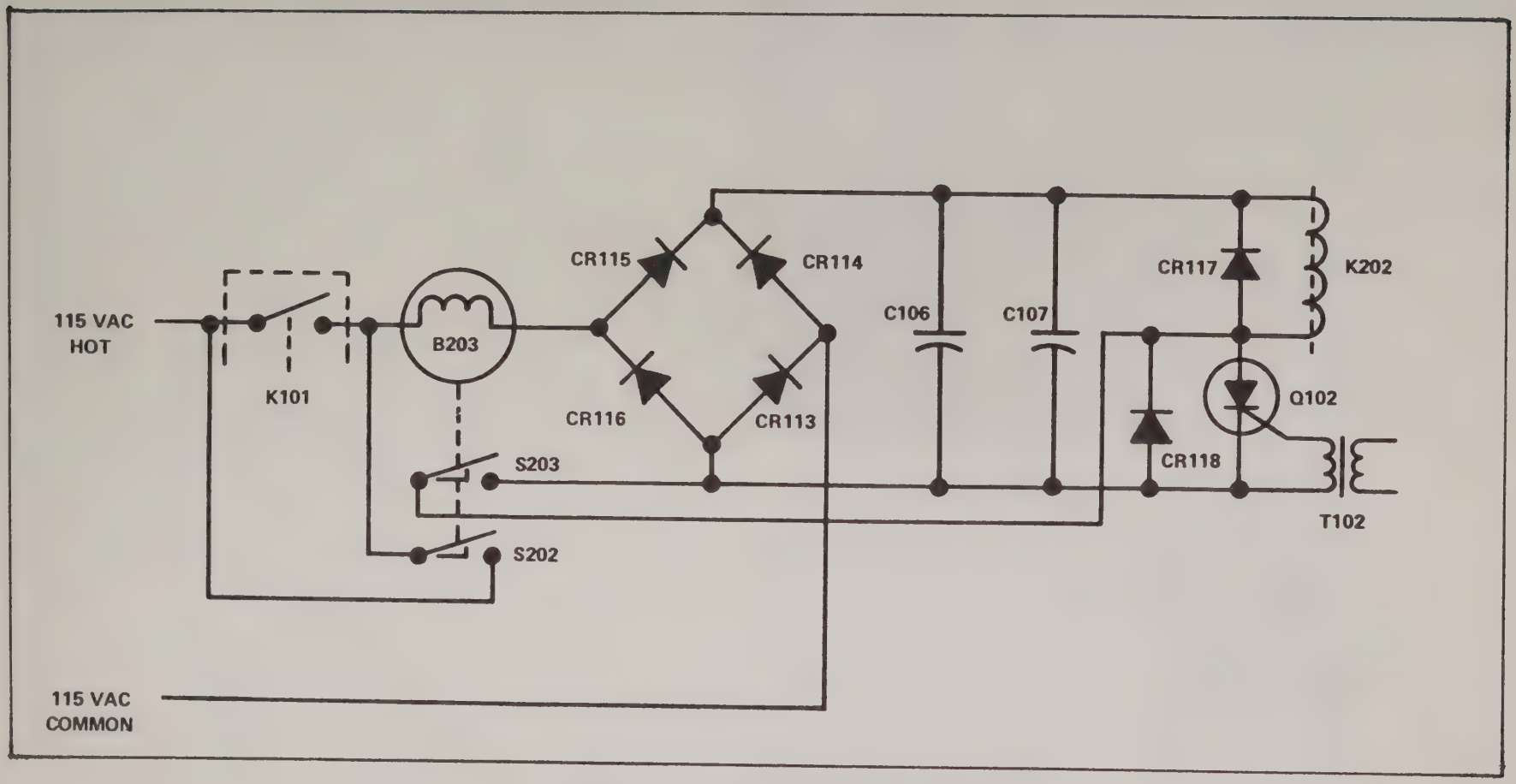


FIGURE 4-2 MOTOR CONTROL CIRCUIT

and C-107 now recharged for the next folding cycle. Switch S-202 is used to bypass relay K-101. This allows the cycle to be completed if relay K-101 is opened during folding cycle (oscillograph chart drive stopped).

The remaining electronics consist of a positive and negative power supply, a regulated intensity light source, and a photo transistor, Q-202 which feeds into a voltage comparator. The power supply consists of transformer T-101, diodes CR-105, CR-106, CR-107 and CR-108 and filter capacitors C-101, C-102 and C-103. The light source consists of lamp DS-201, current regulator Q-101, Zener diode CR-101, and current adjusting pot R-101. The photo transistor, Q-202, is a device which changes resistance with a change in light intensity falling on it. Resistance increases with a decrease in light intensity. The change in resistance causes a change in intensity thru Q-202 which is read as a change in voltage across load resistor R-105. This voltage is fed into one input (pin 2) of comparator IC-101. Into the other input (pin 3) if fed an adjustable reference voltage obtained from the wiper of threshold adjustment potentiometer R-104. When the voltage at input 2 is positive with respect to input 3, the output at pin 6 is negative, (see Fig. 4-3). When the black mark on the paper blocks off the light to transistor Q-202, the voltage at input 2 becomes slightly negative (refer to input pin 3 on Fig. 4-3). The output will change rapidly from negative to positive and in turn cause a pulse at the gate of S.C.R. Q-102 thru transformer T-102.

As the black mark continues past the photo transistor and allows light to fall on it again, comparator input pin 2 becomes positive with respect to input pin 3. The output flips from positive back to negative again. The pulse obtained at the gate of S.C.R. Q-102, this time, is the wrong polarity and will not cause S.C.R Q-102 to conduct and initiate a folding cycle. If there is any noise present in the signal when the voltages at input pins 2 and 3 are very close to each other, the comparator input could flip back and forth and cause random cycling. To prevent this, hysteresis is introduced by the feedback network R-114, R-115 and R-112.

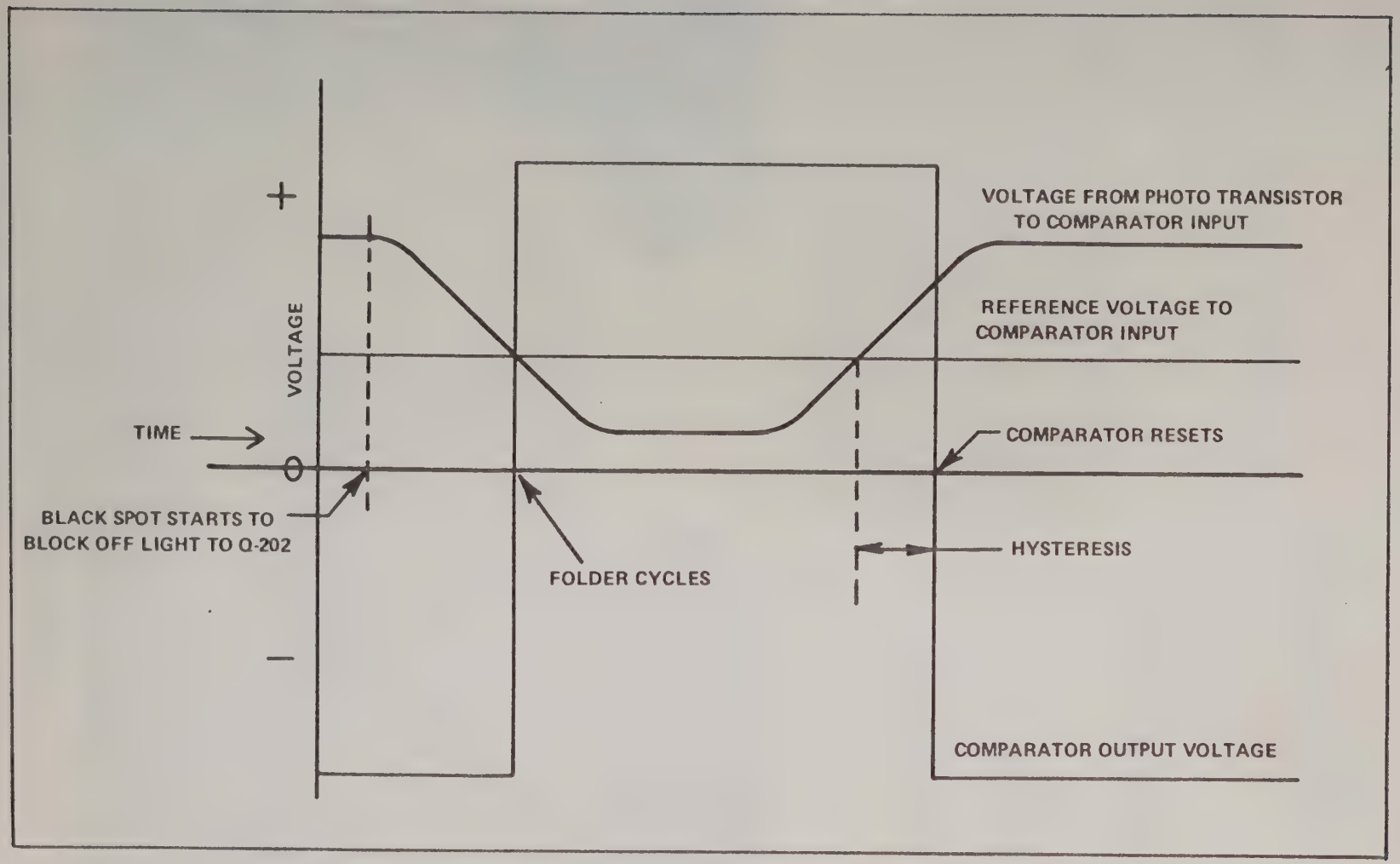


FIGURE 4-3 CONTROL VOLTAGE SEQUENCE AT COMPARATOR (IC-101)

SECTION V

MAINTENANCE

5.1 GENERAL

To insure proper operation, 2-potentiometer adjustments may be required from time to time to maintain specified voltage levels. Light Intensity and Threshold adjustments follow.

5.2 LIGHT INTENSITY ADJUSTMENT

The Light Intensity is adjusted with potentiometer R-101 (Fig. 5-1) so that, with no paper between the lamp and photocell, the voltage drop across pins A and B (Fig. 5-2) of P-203 is 0.5 volts d-c. With a piece of Kromkote chart paper inserted between the lamp and photocell, the voltage drop should rise to 0.9 volts d-c ±10%.

5.3 THRESHOLD ADJUSTMENT

The Threshold Adjustment potentiometer R-104 (Fig. 5-1) is adjusted so folder cycles when photo transistor is midway between saturation (light through paper only) and cutoff (light blocked by black spot).

To adjust cutoff point:

1. Connect voltmeter to pin A and B (Fig. 5-2).

2. Slowly draw a piece of Kromkote paper, with black trigger spot, between lamp and photo cell.

3. Observe voltage drop across pins A and B (Fig 5-2) of P-203. As the trigger spot begins to intercept the light beam, the voltage drop should gradually rise from 0.9 volts d-c to a 7.0 volt d-c ±0.5 volt cutoff point, at which the voltage drop will suddenly rise to approximately 15 volts d-c.

4. If cutoff voltage is not 7.0 volts d-c ±0.5 volts adjust R-104 (Fig. 5-1).

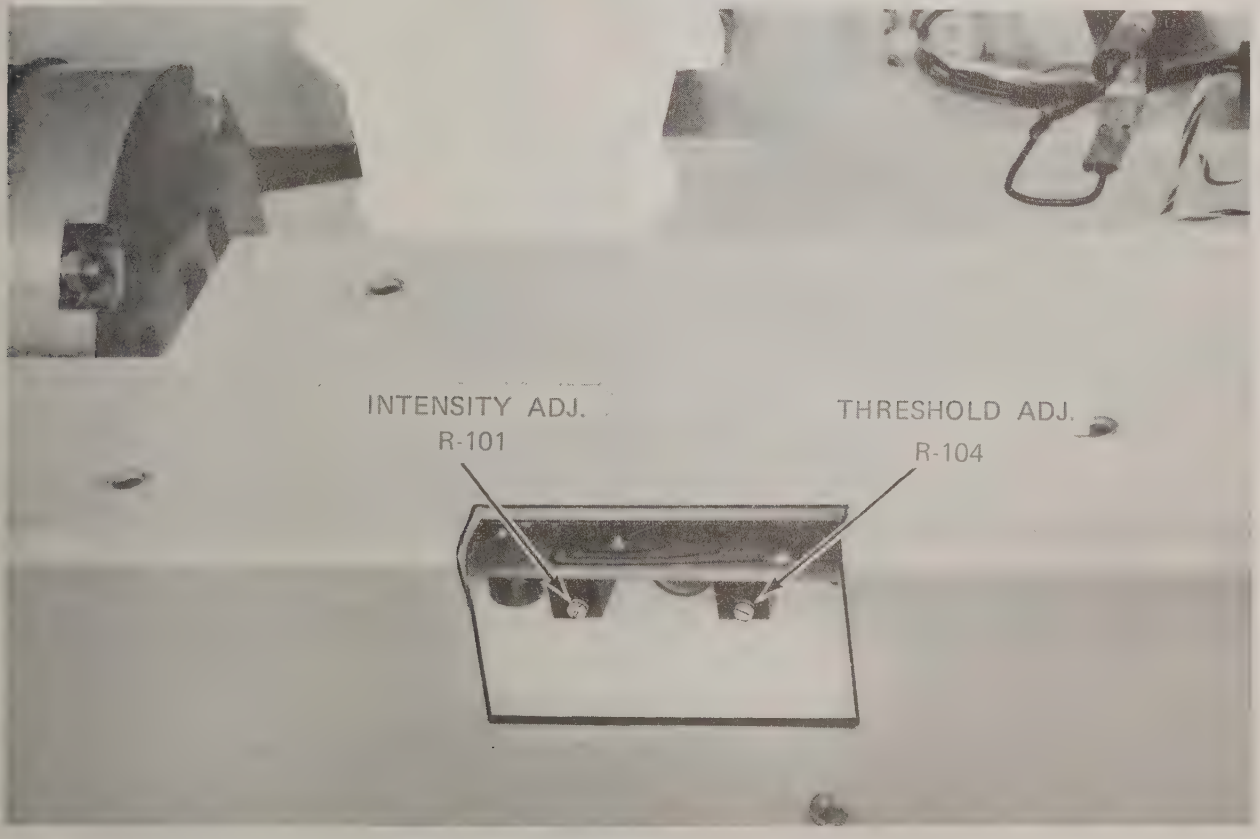


FIGURE 5-1 CONTROL LOCATIONS

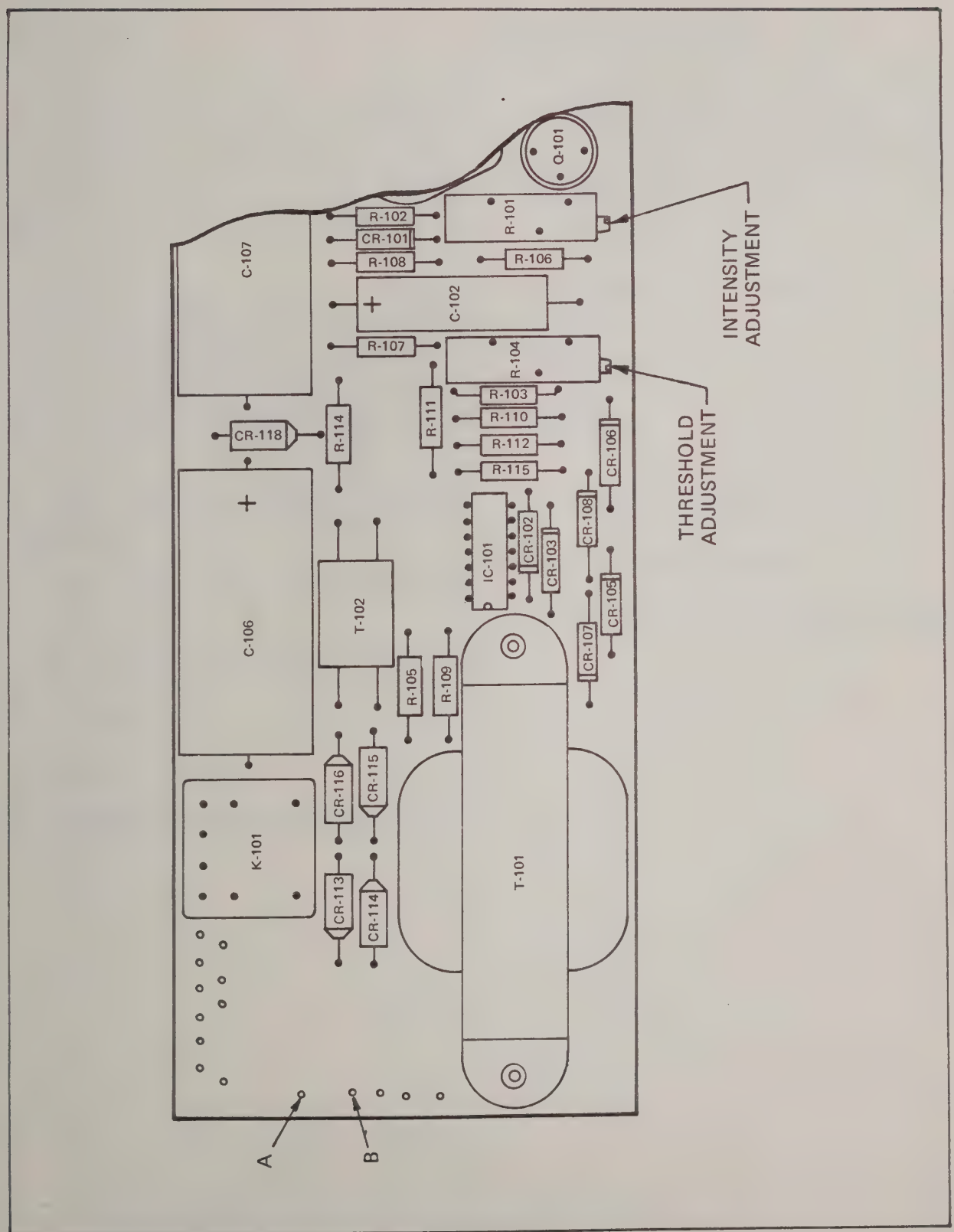


FIGURE 5-2 CONTROL BOARD TEST POINTS & ADJUSTMENTS

SECTION VI

PARTS IDENTIFICATION

6.1 GENERAL

This instrument has been accurately calibrated and adjusted before shipment from the factory and should give long, trouble-free service. For servicing beyond the scope of the instructions contained in this manual or the technical equipment available, contact your nearest Gould Service Engineer listed on the warranty card shipped with the instrument.

The following parts lists and schematic diagram(s) are designed to assist in servicing and repairing the instrument. For replacement parts, refer to the appropriate Figure and Parts List that follows. The items listed do not necessarily imply they are procurable. If an item is marked with an obelisk (†), it is not procurable.

To assure prompt and satisfactory delivery of replacement parts, include the following with the purchase order:

1. Name, model number, and serial number of the instrument.

   For Example: Z - Fold Kit, Model 11-2271-24, Serial Number _____

2. Description of the part as listed in the manual.

3. Gould part number.

NOTE: Do not use the SYMBOL NUMBER from the parts list for identifying desired parts on the order.

6.2 USED ON COLUMN

The USED ON COLUMN is used on parts lists where one or more parts or assemblies listed is not common to all Z - Fold Kit Models. The model or models that the affected part (or assembly) is used on is then designated in the USED ON column of the parts list.

USED ON CODE

MODEL NUMBER	SHOWN AS
11-2271-20	20
11-2271-21	21
11-2271-22	22
11-2271-23	23
11-2271-24	24
11-2271-25	25

NOTE: If the part (or assembly) is common to all models, the USED ON column is left blank.

6.3 ATTACHING PARTS (A-P)

Hardware required (but not illustrated) to attach the previous listed item to illustrated assembly.

Z-FOLD KIT ASSEMBLY, Model 11-2271-2X
EXPLODED VIEW PARTS LIST
FIGURE 6-1

ITEM NUMBER	PART NUMBER	DESCRIPTION	*USED ON
1	† 869139	Folder Unit Assembly (See Fig. 6-2)	20
1	† 869139-1	Folder Unit Assembly (See Fig. 6-2)	24
1	† 869139-2	Folder Unit Assembly (See Fig. 6-2)	25
1	† 869994	Folder Unit Assembly (See Fig. 6-2)	21
1	† 869994-1	Folder Unit Assembly (See Fig. 6-2)	22
1	† 869994-2	Folder Unit Assembly (See Fig. 6-2)	23
2	† 869140	Catch Drawer Assembly (See Fig. 6-3)	20, 21
2	† 869140-1	Catch Drawer Assembly (See Fig. 6-3)	22 thru 25

† Items listed on this page are not procurable. Order desired parts from Figures 6-2 and 6-3 exploded views parts lists.
* Refer to USED ON CODE found on page 6.1.

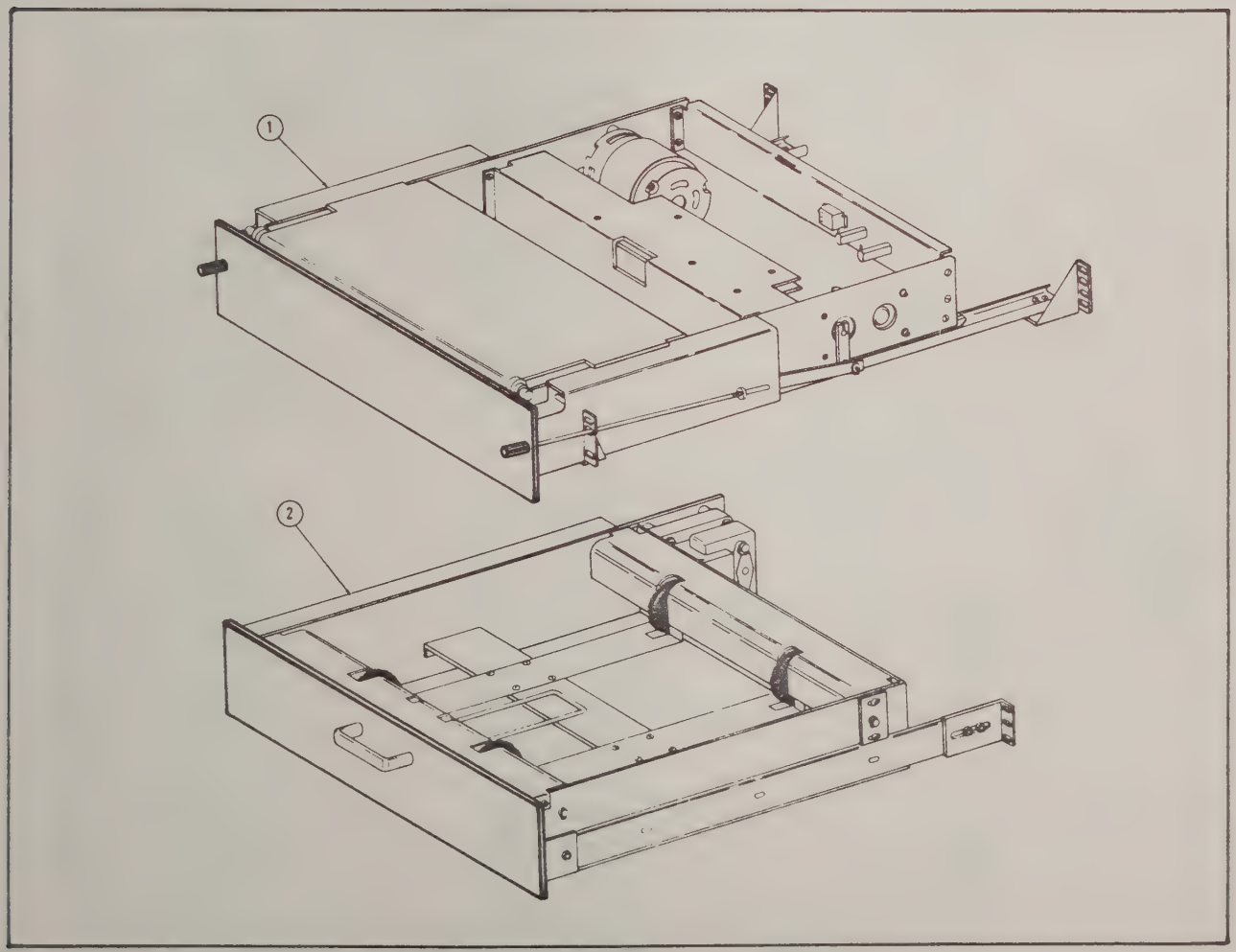


FIGURE 6-1 Z-FOLD KIT ASSEMBLY

FOLDER UNIT ASSEMBLY
869139, 869139-1, 869139-2, 869994, 869994-1, 869994-2
EXPLODED VIEW PARTS LIST
FIGURE 6-2

ITEM NUMBER	PART NUMBER	DESCRIPTION	SYMBOL NUMBER	* USED ON
	869016	Table Assembly		20, 21
	869016-1	Table Assembly		22 thru 25
1	268784	Guide, Paper (A-P)		
	14- 121166-4002	Screw, Set		
		———*———		
1A	268649	Shaft		
2	468728	Table		20, 21
2	468728-1	Table (A-P)		22 thru 25
	31- 119918-0214	Screw, Pan Head		
	1- 216741-430	Lockwasher		
		———*———		
3	268798	Spring (A-P)		
	267080-3	Lug		
	31- 119918-8208	Screw, Pan Head		
	1- 216741-425	Lockwasher		
	31- 119998-82	Nut, Hex		
		———*———		
4	243225-3	Clamp, Loop		
5	243225-4	Clamp, Loop		
6	124804-1	Clamp, Loop (A-P)		
	31- 119918-4006	Screw, Pan Head		
	1- 118195-304	Washer, Plain		
	31- 119998-40	Nut, Hex		
		———*———		
	869009	Harness Assembly		20,21,24,25
	887930	Harness Assembly		22, 23
7	265840-1	Lug, Terminal		20,21,24,25
7	104795-7	Lug, Terminal		22, 23
7A	283210	Plug - AC Male (Not Shown)	P-102	22,23
8	2- 247925	Contacts (Part of Item 9)		
9	9- 247924-9	Connector, 9-Pin	J-201	
10	9- 247924-9	Connector, 9-Pin	J-202	
11	2- 247925	Contacts (Part of Item 10)		
	869007	Harness Assembly		
12	2- 247926	Contacts (Part of Item 13)		
13	9- 247923-9	Connector, 9-Pin	P-201	
14	130168	Connector	P-203	
14A	123108-84	Grommet (A-P)		
	31- 119920-2608	Screw, Flat Head		
	1- 216741-402	Lockwasher		
	31- 119998-26	Nut, Hex		
		———*———		

*Refer to USED ON CODE found on page 6.1.

FOLDER UNIT ASSEMBLY
869139, 869139-1, 869139-2, 869994, 869994-1, 869994-2
EXPLODED VIEW PARTS LIST
FIGURE 6-2 (Continued)

ITEM NUMBER	PART NUMBER	DESCRIPTION	SYMBOL NUMBER	*USED ON
15	269253-1	Bracket, Capacitor		20,21,22,24
15	230014	Bracket, Capacitor		23, 25
16	127852	Capacitor	C-208	20,21,22,24
16	263890-505	Capacitor (A-P)	C-208	23, 25
	31- 119918-8208	Screw, Pan Head		
	1- 216741-425	Lockwasher		
	31- 119998-82	Nut, Hex		
		———*———		
17	465913-20	Plate, Identification		20
17	465913-32	Plate, Identification		21, 22, 23
17	465913-445	Plate, Identification		24
17	465913-446	Plate, Identification		25
18	129758	Fuse Holder		
19	266924-3	Fuse, Slo-Blo, 3 Amp	F-201	
20	266924-2	Fuse, Slo-Blo, ¼ Amp	F-202	
21	868788	Bracket, Back Panel (A-P)		
	31- 119918-8208	Screw, Pan Head		
	1- 216741-425	Lockwasher		
	31- 119998-82	Nut, Hex		
		———*———		
22	268626	Cam (A-P)		
	31- 119918-2608	Screw, Pan Head		
	1- 216741-402	Lockwasher		
	31- 129647-26	Nut, Hex		
		———*———		
23	268629	Motor, Folder (60Hz)	B-203	20,21,22,24
23	269713	Motor, Folder (50Hz) (A-P)	B-203	23, 25
	31- 119920-8206	Screw, Flat Head		
	31- 119918-8208	Screw, Pan Head		
	1- 216741-425	Lockwasher		
		———*———		
24	268623	Spacer, Switch (A-P)		
	31- 119920-8206	Screw, Flat Head		
	1- 216741-425	Lockwasher		
		———*———		
25	266326	Switch, Sensitive	S-202	
26	230077	Switch Actuator		
27	266326	Switch, Sensitive (A-P)	S-203	
	31- 119918-2616	Screw, Pan Head		
		———*———		

*Refer to USED ON CODE found on page 6.1.

FOLDER UNIT ASSEMBLY
869139, 869139-1, 869139-2, 869994, 869994-1, 869994-2
EXPLODED VIEW PARTS LIST
FIGURE 6-2 (Continued)

ITEM NUMBER	PART NUMBER	DESCRIPTION	SYMBOL NUMBER	*USED ON
28	268673	Bracket, Micro Switch		20,24,25
28	269910	Bracket, Micro Switch		21,22,23
		(A-P)		
	31- 119918-8208	Screw, Pan Head		
	1- 216741-425	Lockwasher		
	31- 119998-82	Nut, Hex		
		———*———		
29	267186	Switch, Sensitive	S-204	
		(A-P)		
	31- 119918-2610	Screw, Pan Head		
	1- 216741-402	Lockwasher		
	1- 118195-303	Washer, Plain		
	31- 119998-26	Nut, Hex		
		———*———		
30	283143	Motor, Torque	B-202	20,24,25
30	683937	Motor, Torque	B-202	21,22,23
31	268582-3	Spacer		
		(A-P)		
	31- 119922-8216	Screw, Cap		
	1- 118195-307	Washer, Plain		
		———*———		
32	768843	Shelf Assembly		
		(A-P)		
	31- 119918-8208	Screw, Pan Head		
	1- 216741-425	Lockwasher		
	31- 119998-82	Nut, Hex		
		———*———		
33	368733	Plate, Side R.H. Back		
34	268670	Arm, Cranking		
35	268774	Shaft		
		(A-P)		
	31- 119922-4006	Screw, Cap		
	1- 216741-411	Lockwasher		
		———*———		
36	768828	Arm Assembly, Linkage		
37	9- 227070-3	Ring, Retaining		
38	268856	Cam		20,24,25
38	† 680296	Cam Assembly		21,22,23
	269915	Plate, Cam (Not Exploded)		
	680297	Cam (Not Exploded)		
		(A-P)		
	13- 262716-4004	Screw, Self Tap		
	1- 216741-411	Lockwasher		
		———*———		
		(A-P)		
	31- 119918-8206	Screw, Pan Head		
	1- 216741-425	Lockwasher		
	31- 119998-82	Nut, Hex		
		———*———		

† Cam Assembly (P/N 680296) not procurable. Use indented parts.
* Refer to USED ON CODE found on page 6.1.

FOLDER UNIT ASSEMBLY
869139, 869139-1, 869139-2, 869994, 869994-1, 869994-2
EXPLODED VIEW PARTS LIST
FIGURE 6-2 (Continued)

ITEM NUMBER	PART NUMBER	DESCRIPTION	SYMBOL NUMBER	*USED ON
39	268708	Slide Chassis		20,24,25
39	269909	Slide Chassis		21,22,23
40	268572	Bracket, Slide Rt. Rear		20,24,25
40	269914	Bracket, Slide Rt. Rear (A-P)		21,22,23
	31- 119918-8206	Screw, Pan Head		
	1- 216741-425	Lockwasher		
	31- 119998-82	Nut, Hex		
		———*———		
41	368830	Cover Plate, R.H.		20, 21
41	368830-1	Cover Plate, R.H. (A-P)		22 thru 25
	31- 119920-4004	Screw, Flat Head		
		———*———		
42	268581	Angle (A-P)		20,24,25
	31- 119918-8210	Screw, Pan Head		
	1- 118195-307	Washer, Plain		
	31- 119918-8206	Screw, Pan Head		
	1- 216741-425	Lockwasher		
	31- 119998-82	Nut, Hex		
		———*———		
42	269911	Angle (A-P)		21,22,23
	269912	Screw, Shoulder		
	1- 118195-307	Washer, Plain		
	1- 216741-425	Lockwasher		
	31- 119998-82	Nut, Hex		
		———*———		
43	9- 227070-9	Ring, Retaining (Attaching Part for item 62)		
44	127711-6	Bearing Sleeve, Nylon (Attaching Part for item 62)		
45	9- 227070-6	Ring, Retaining (Attaching Part for item 68)		
46	240889-1	Bearing Sleeve, Nylon (Attaching Part for item 68)		
47	769070	Plate Assembly, Side R.H. Front		
48	868840	Control Board Assembly (See Fig. 6-4) (A-P)		
	31- 119918-6206	Screw, Pan Head		
	1- 216741-420	Lockwasher		
		———*———		
49	268654	Bracket, Front Panel (A-P)		
	31- 119918-0206	Screw, Pan Head		
	1- 216741-430	Lockwasher		
	31- 119998-02	Nut, Hex		
		———*———		

* Refer to USED ON CODE found on page 6.1.

FOLDER UNIT ASSEMBLY
869139, 869139-1, 869139-2, 869994, 869994-1, 869994-2
EXPLODED VIEW PARTS LIST
FIGURE 6-2 (Continued)

ITEM NUMBER	PART NUMBER	DESCRIPTION	SYMBOL NUMBER	* USED ON
	768829	Folder Assembly		
50	268769	Shaft		
51	268671	Shaft, Folding		
52	668595	Retainer, Carriage - L.H.		
53	668621	Retainer, Carriage - R.H.		
54	9- 227070-6	Ring, Retaining		
55	230069-1	Ball Bearing		
56	268975	Shaft, Shouldered		
57	4- 112468-1	Roll Pin		
58	1- 112468-27	Roll pin		
	768846	Sensor Assembly, Optical		
59	230068	Lamp, Incandescent	DS-201	
60	769152	Holder Assembly		
61	230071	Transistor, 2N5777	Q-202	
62	668599	Roll Assembly, Drive Rear (A-P) See items 43 & 44 for Attaching Parts. ---*---		
63	668597	Roll Assembly, Drive Front (A-P)		
64	9- 227070-9	Ring, Retaining ---*---		
65	265741-1	Ball Bearing		
66	243867-7	O - Ring		
67	268596	Bar, Spacer, Rear (A-P)		
	31- 119920-0208	Screw, Flat Head		
	31- 119918-0208	Screw, Pan Head		
	1- 216741-430	Lockwasher ---*---		
68	768637	Clamp Assembly (A-P) See items 45 & 46 for Attaching Parts. ---*---		
69	230080	Shield, Static (A-P)		
	13- 233934-27	Eyelet ---*---		
70	230067	Spring		
71	868770	Panel Assembly, Front		20, 21
71	887883	Panel Assembly, Front (A-P)		22 thru 25
	1- 216741-425	Lockwasher		
	31- 119998-82	Nut, Hex ---*---		

* Refer to USED ON CODE found on page 6.1.

FOLDER UNIT ASSEMBLY
869139, 869139-1, 869139-2, 869994, 869994-1, 869994-2
EXPLODED VIEW PARTS LIST
FIGURE 6-2 (Continued)

ITEM NUMBER	PART NUMBER	DESCRIPTION	SYMBOL NUMBER	*USED ON
72	268576	Bracket, Slide, Left Front (A-P)		
	31- 119918-8206	Screw, Pan Head		
	1- 216741-425	Lockwasher		
	31- 119998-82	Nut, Hex		
		———*———		
73	268574	Block, Mounting (A-P)		
	31- 119918-6210	Screw, Pan Head		
	1- 216741-420	Lockwasher		
	31- 119998-62	Nut, Hex		
	31- 119918-8206	Screw, Pan Head		
		———*———		
74	230073	Solenoid	K-202	
75	268573	Bracket, Slide, Left Rear (A-P)		
	31- 119918-8206	Screw, Pan Head		
	1- 216741-425	Lockwasher		
	31- 119998-82	Nut, Hex		
		———*———		
76	769068	Plate Assembly, Left Side		20,24,25
76	769919	Plate Assembly, Left Side		21,22,23
77	294710	Screw, Locking		
78	268772	Shaft		
79	31- 121166-4002	Screw, Set		
80	294709	Screw, Locking		
81	243104-8	Washer, Non- Metal		
82	268795	Knob		20, 21
82	268795-1	Knob		22 thru 25
83	268848	Bracket Lever (A-P)		
	31- 119918-0208	Screw, Pan Head		
	1- 216741-430	Lockwasher		
		———*———		
84	668849	Spacer Assembly, Brake (A-P)		
	31- 119922-4006	Screw, Cap		
	1- 216741-411	Lockwasher		
		———*———		
85	236865-1	Pin, Cotter		
	668857	Support Assembly, Lever		
86	668850	Lever Assembly, Brake		
87	268578	Support, Brake		
88	240161-310	Pin		

* Refer to USED ON CODE found on page 6.1.

FOLDER UNIT ASSEMBLY
869139, 869139-1, 869139-2, 869994, 869994-1, 869994-2
EXPLODED VIEW PARTS LIST
FIGURE 6-2 (Continued)

ITEM NUMBER	PART NUMBER	DESCRIPTION	SYMBOL NUMBER	* USED ON
	668827	Pulley Assembly		
89	268587	Gear, Spur - 32D.P. (A-P)		
	31- 119918-2608	Screw, Pan Head		
	1- 216741-402	Lockwasher		
		———*———		
90	268586	Spacer		
91	268580	Disk, Brake		
92	268585	Pulley, V - Belt (A-P)		
	31- 121166-4002	Screw, Set		
		———*———		
93	268584	Gear, Spur - 32D.P. (A-P)		
	31- 121166-4002	Screw, Set		
		———*———		
94	9- 227070-6	Ring, Retaining		
95	230072-1	Belt		
96	246422-1	Switch	S-201	
97	368832	Cover Plate, L.H.		20
97	368832-1	Cover Plate, L.H.		24, 25
97	369906	Cover Plate, L.H.		21
97	369906-1	Cover Plate, L.H. (A-P)		22, 23
	31- 119920-4004	Screw, Flat Head		
	- 234469-1	Grommet		
		———*———		
	669011	Clutch Assembly		
98	1- 106767-1	Nut, Plain, Hex (Attaching Part for P/N 669011)		
99	268978	Washer, Stepped		
100	266749-3	Washer, Finger Spring		
101	269004-2	Washer, Flat		
102	269003	Pulley		
103	269004-1	Washer, Shouldered		
104	268979	Hub (A-P)		
	31- 119923-6202	Screw, Set		
	14- 119923-6203	Screw, Set		
		———*———		
105	268575	Bracket, Slide, Rt. Front		20,24,25
105	269916	Bracket, Slide, Rt. Front (A-P)		21,22,23
	31- 119918-8206	Screw, Pan Head		
	1- 216741-425	Lockwasher		
	31- 119998-82	Nut, Hex		
		———*———		

* Refer to USED ON CODE found on page 6.1.

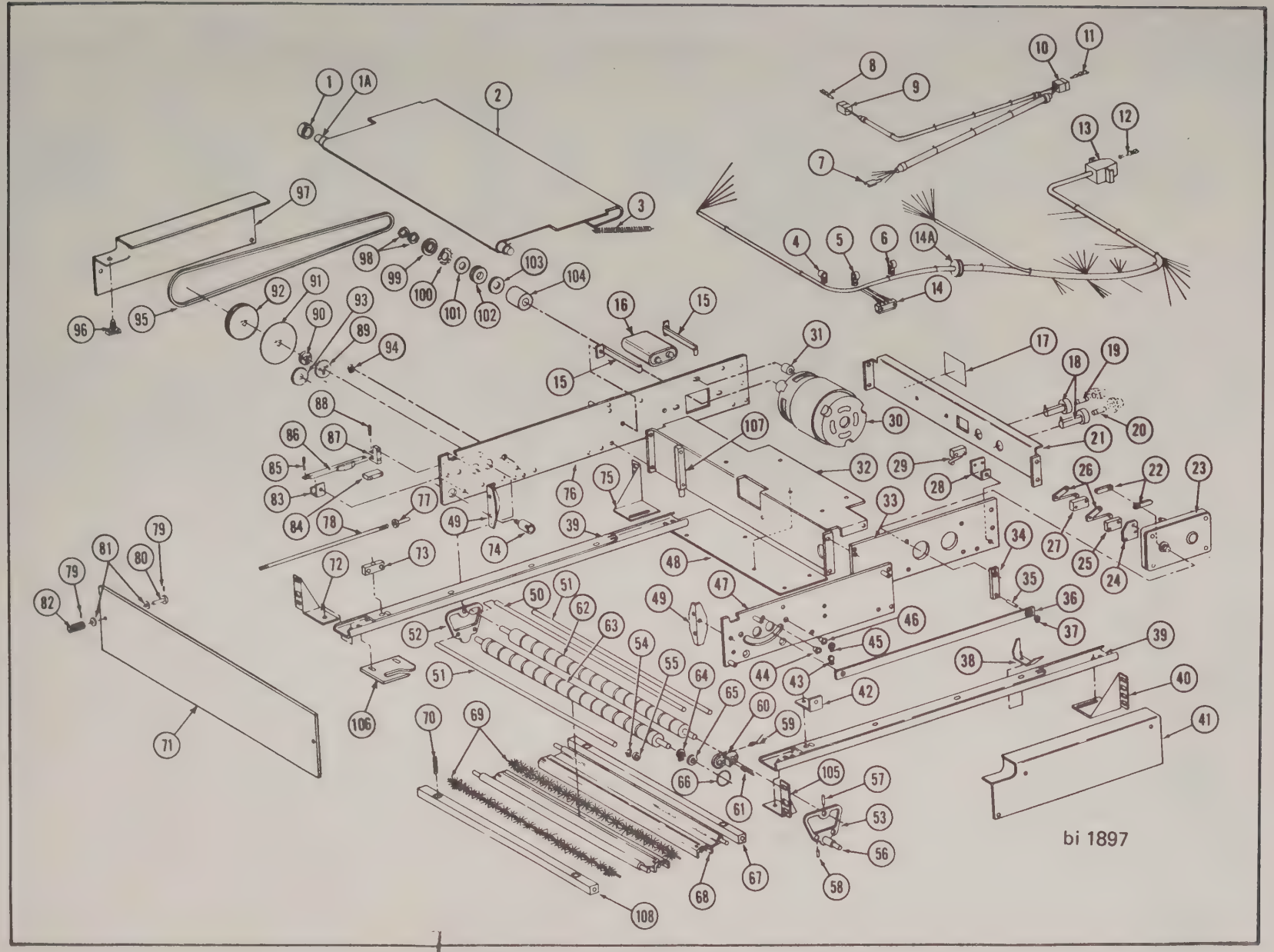


FIGURE 6-2 FOLDER UNIT ASSEMBLY

CATCH DRAWER ASSEMBLY - 869140 & 869140-1
EXPLODED VIEW PARTS LIST
FIGURE 6-3 (Continued)

ITEM NUMBER	PART NUMBER	DESCRIPTION	SYMBOL NUMBER	* USED ON
13	269086	Motor, A.C. (A-P)	B-201	
	31- 119924-0214	Screw, Hex Head		
	1- 216741-430	Lockwasher		
	1- 118195-309	Washer, Plain		
		———*———		
14	769122	Tray, Assembly, Paper		
15	269103	Bracket, Bearing (A-P)		
	31- 119918-8208	Screw, Pan Head		
	1- 216741	Lockwasher		
	31- 119998-82	Nut, Hex		
		———*———		
16	127711-6	Bearing Sleeve, Nylon		
17	268792	Bracket, Slide, Front (A-P)		
	31- 119918-8206	Screw, Pan Head		
	1- 216741-425	Lockwasher		
	31- 119998-82	Nut, Hex		
		———*———		
18	369110	Retainer, Paper (A-P)		
	31- 119918-4006	Screw, Pan Head		
	1- 216741-411	Lockwasher		
	31- 119998-40	Nut, Hex		
		———*———		
19	469111	Support, Paper (A-P)		
	31- 119920-8206	Screw, Flat Head		
	31- 119918-8208	Screw, Pan Head		
	1- 216741-425	Lockwasher		
	31- 119998-82	Nut, Hex		
		———*———		
20	123108-84	Grommet		
21	9- 247923-9	Connector, 9-Pin	P-202	
22	2- 247926	Contacts (Part of Item 21)		
23	269107	Bail, Paper		
24	269105	Bracket, Bail (A-P)		
	31- 119918-0408	Screw, Pan Head		
		———*———		
25	868785	Panel Assembly, Front		20, 21
25	868785-1	Panel Assembly, Front (A-P)		22 thru 25
	1- 216741-425	Lockwasher		
	31- 119998-82	Nut, Hex		
		———*———		

*Refer to USED ON CODE found on page 6.1.

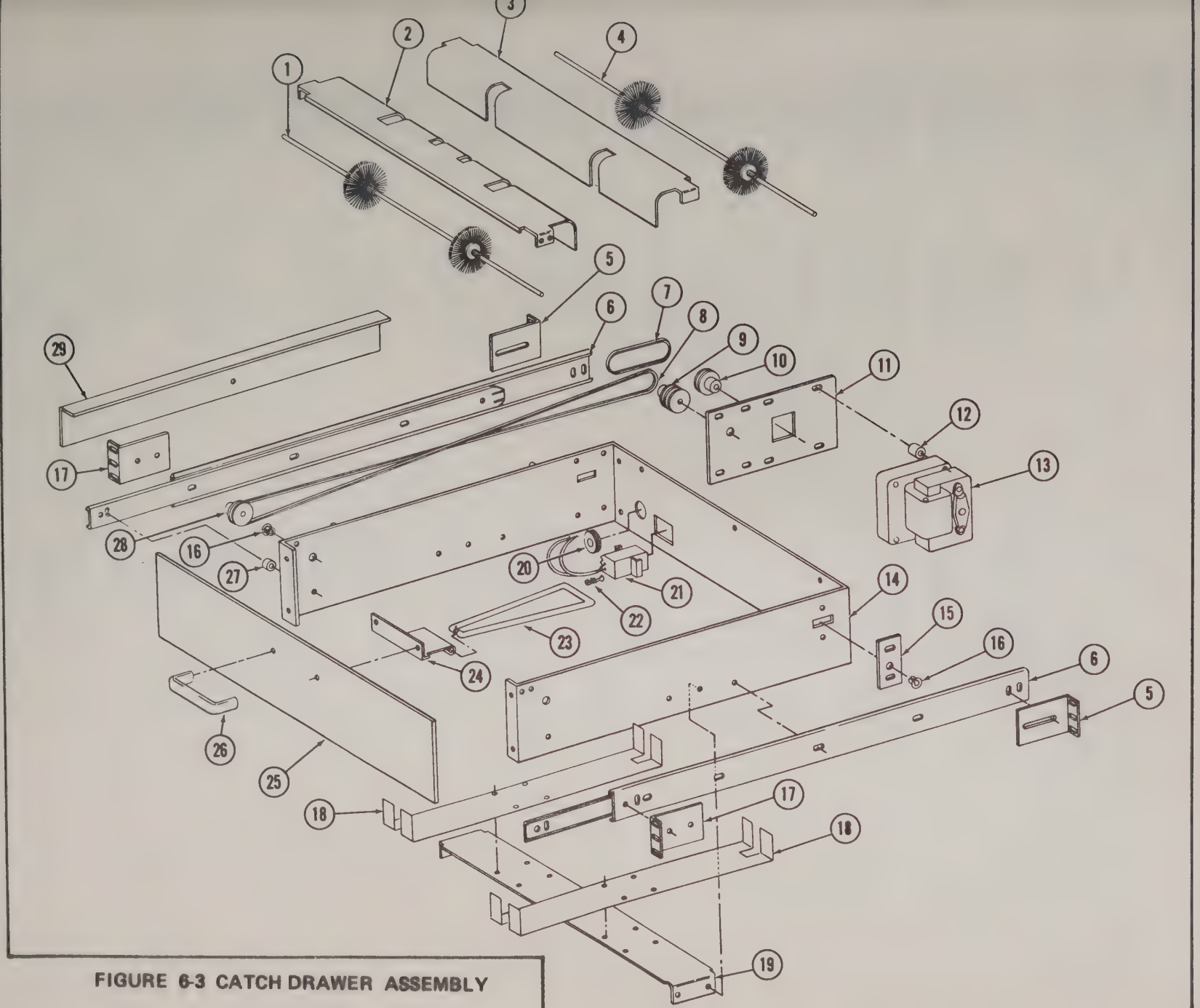


FIGURE 6-3 CATCH DRAWER ASSEMBLY

CONTROL BOARD ASSEMBLY - 868840
ELECTRICAL PARTS LIST
FIGURE 6-4

SYMBOL NUMBER	PART NUMBER	DESCRIPTION
C-101	243037-107	Capacitor, 100µfd
C-102	231707-207	Capacitor, 200µfd
C-103	243037-107	Capacitor, 100µfd
C-104,C-105	Not Used	
C-106,C-107	241513-506	Capacitor, 50µfd
CR-101	241133	Zener Diode, 1N751A
CR-102,CR-103	280870-1	Zener Diode, 1N5245B
CR-104	Not Used	
CR-105 thru CR-108	269256-7	Diode, 1N4007
CR-109 thru CR-112	Not Used	
CR-113 thru CR-118	269256-5	Diode, 1N4005
IC-101	280863-3	Integrated Circuit, 741CP
K-101	281505	Relay
Q-101	242323	Transistor
	231978	Pad, Transistor (Used with Q-101)
Q-102	249164	Transistor, 2N3228 (A-P)
	31- 119918-4004	Screw, Pan Head
	31- 129647-40	Nut,Hex
		— — —*— — —
R-101	244771-201	Resistor, Variable
R-102	5- 115557-470	Resistor
R-103	5- 115557-102	Resistor
R-104	244771-103	Resistor, Variable
R-105	5- 115557-103	Resistor
R-106	5- 115557-102	Resistor
R-107	5- 115557-471	Resistor
R-108	5- 115557-472	Resistor
R-109,R-110	5- 115557-103	Resistor
R-111	5- 115557-471	Resistor
R-112	5- 115557-333	Resistor
R-113	Not Used	
R-114	5- 115557-183	Resistor
R-115	5- 115557-223	Resistor
T-101	267952	Transformer
T-102	243952	Transformer,Pulse

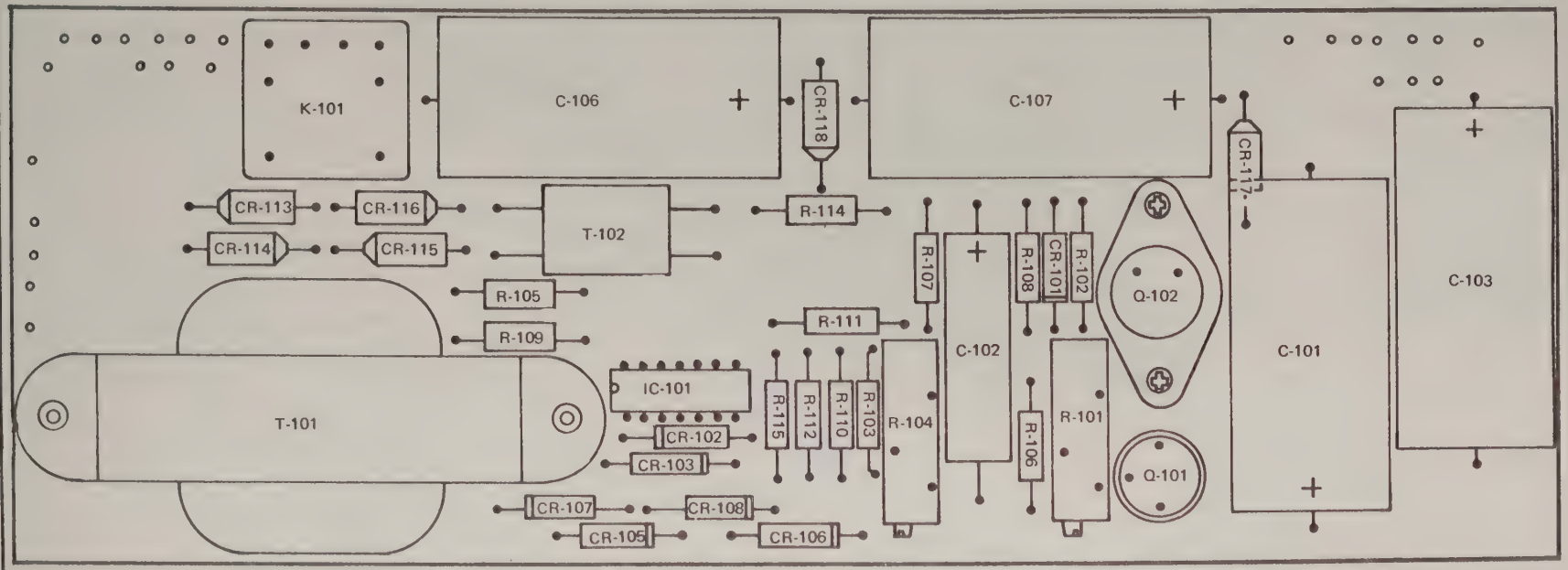
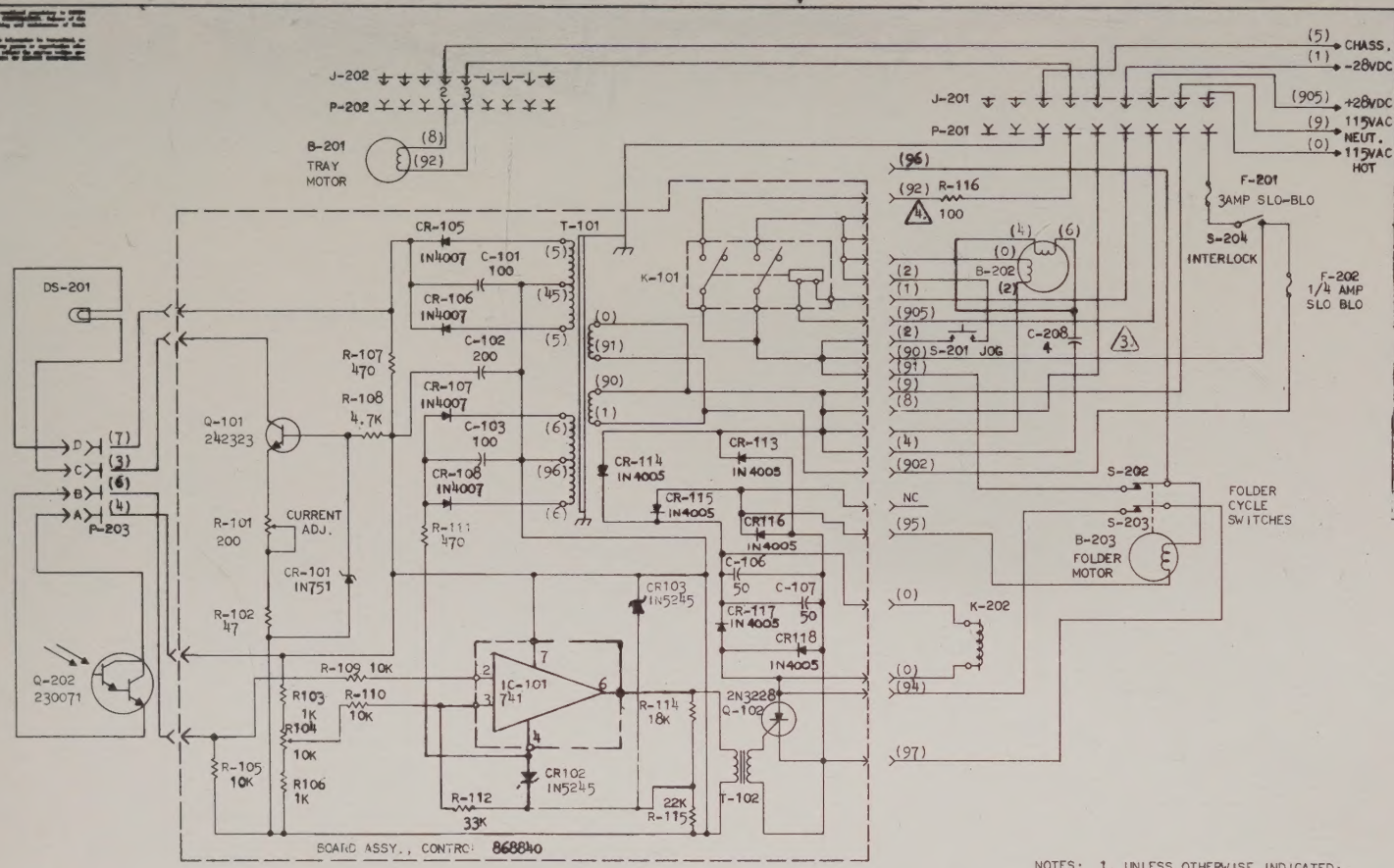


FIGURE 6-4 CONTROL BOARD ASSEMBLY - 868840



REVISIONS			
REV	DESCRIPTION	DATE	APPROVAL
A-1	REV PER DCN 11794 EH	11/1/68	E Hauser
A-2	DELETED TEST POINTS & ADDED REF INFO TO OUTPUT. DCN11969 EH	5/27/69	E Hauser
B-1	C-208 WAS: 2 MFD DCN 12122 HAUSER	11/1/69	E Hauser
C-1	REV. B-202 (OVERSIGHT PER B-1 DCN 12122)	11/1/70	Haubrich
C-2	R-101 WAS: 500 OHMS DCN 15034 PREDOVIC	11/1/70	Haubrich
D-1	C-208 WAS: 10 DCN14510	11/1/73	Haubrich
E-1	C-208 WAS: 5 DCN14830	11/1/73	Haubrich
F-1	IN4007 (CR-105 THRU 108) WAS: IN3749 DCN/19540	12/5/74	P. MILLER
F-2	ADDED NOTE 3 AND 11-2271-22 &11-2271-23	10/1/75	
G-1	REVISED SCHEMATIC PER DCN 22149 SMOTZER	11/1/76	
G-2	REVISED SCHEMATIC PER DCN 25507/A, SOTEROS	3/1/78	
H-1	REVISED TITLE TO INCLUDE -24 & -25 MODELS		K. HAMILTON
H2	CORRECTED TYPING ERROR IN NOTE 3/DCN 26222	3-21-80	
J-1	ADDED R-116 AND NOTE 4 DCN 27237/A, SOTEROS	11-18-80	

NOTES: 1. UNLESS OTHERWISE INDICATED:
ALL CAPACITANCE IN MICROFARADS.
ALL RESISTANCE IN OHMS.
ALL RESISTORS 5% TOLERANCE.
2. WIRE COLORS IN EIA COLOR CODE SHOWN IN PARENTHESIS ( ).

3. C-208 IS 5MFD ON 11-2271-23, 11-2271-25

4. R-116 USED ON 50HZ. UNITS ONLY (11-2271-23 & 11-2271-25).

CHART PAPER FOLDER ("Z")

Gould Inc.
Instrument Systems Division
Cleveland, Ohio 44114 U.S.A.

BY	DATE	NAME	SCHEMATIC 11-2271-20, -21, -22, -23, -24, -25	
WEILAND/	EH			
		CODE IDENT. 96795	ISSUE CODE G	DWG NO. 269008

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